The PHOTOFACT Servicer

MARCH 19th, 1947 ★ *Published for all users of Howard W. Sams' Photofact Folders* ★ VOL. 2. No. 17

ROBERT M. ELLIS, *Editor*

SYLVANIA PARTICIPATES

Sylvania (Sylvania Electric Products, Inc.) has become a participating component manufacturer in PHOTOFACT Folders. This decision on the part of the Sylvania organization was made after they had carefully investigated our activities, performance, and projected program. We feel that it is a great compliment, as well as an important addition to coverage and services rendered to the field, that we are able to make this announcement.

It is only proper that you should know that participating component parts manufacturers share in our expense. This arrangement makes it possible to bring PHOTOFACT Folders to you at the extremely reasonable price of $1.50 a set. Without the participation of the component manufacturers, the price would, of necessity, be much higher.

Effective with PHOTOFACT Folder Set No. 17, under Parts List and Description, we will show in the tube listing column "Sylvania or equivalent." This should not be considered as an advertisement—your support is merited by Sylvania's help to you as evidenced by their activity in the PHOTOFACT Folder program, which they and we consider a genuine benefit to the entire radio industry.

★ ★

NEW BATTERY LISTINGS

PHOTOFACT users will enthusiastically welcome a new feature inaugurated in this issue of PHOTOFACT Folders (No. 17). Replacements will be listed for the batteries used in farm, portable, personal and 3-way sets. The brand name specified—EVEREADY—is known to every experienced service engineer as a synonym of quality. This feature becomes possible with the advent of National Carbon Company, Inc. as a participating manufacturer.

Here, again, we feel honored that an organization as widely known and respected as National Carbon Company, Inc. has joined in our program for bringing better and more complete information to the service engineer.

★ ★

THE COST OF PHOTOFACT FOLDERS

Have you any idea how much PHOTOFACT Folders cost? According to the C.P.A. statement, we spent $403,531.05 to create, print and distribute Volume 1, which includes Sets No. 1 to No. 10.

What is your cost of PHOTOFACT Folders? You pay $1.50 per set; and that averages less than 9¢ per day, based on a production schedule of 20 Folders per year. However, tests show that if full advantage is taken of all PHOTOFACT features an average saving of up to 50% of bench time can be made on repairs. Accordingly, PHOTOFACT Folders actually cost you nothing—they pay for themselves over and over again.

CALL FOR A VOTE

How shall we bring you "Additions, Changes and Corrections?" Please send a postal card and give us your comments.

In our original set-up we printed the "Additions, Changes and Corrections" sheet on one side of the page, and gummed the edge. The instructions were "cut on this line—moisten edge—and apply to the proper folder."

In practice this method proved to be somewhat unsatisfactory on several counts—

1. Numerous production changes in receivers and revisions in the lines of our participating manufacturers make it desirable to bring you this supplementary information at a more rapid pace.
2. The narrow strips, attached to the folder at one end tear loose in handling, according to some of our patrons.
3. In some climates the gummed edge adheres occasionally to the adjacent page while in the envelope.

Quite a number of you wrote and said, "Forget the gummed paper, print on both sides and keep us up-to-date. We copy the stuff on the Folder anyway so that your gluing idea is of no value." Accordingly, in PHOTOFACT Set No. 14, we made this change.

We now find that our original set-up met with the approval of many other users—and they have asked us to return to the former method.

We want to give you PHOTOFACT Folders the way you want them, and the majority will rule. Please tell us—shall we continue our present method—shall we return to the "one side of the paper, gummed edge" system; or can you suggest a better way? Please let us hear from you—give us your vote.

★ ★

REGISTRATION CARDS

Owing to the continued shortage of cardboard stock, registration cards for membership in the Howard W. Sams Institute will be included in only about every third issue of PHOTOFACT Folders. If you have registered once as a member of the Institute, your name is on our rolls and it is not necessary to register again. USE THE CARD ONLY IF YOU HAVE NOT REGISTERED BEFORE.

When writing for technical data, please mention you are a Member of the Institute. This will speed the handling of your inquiry.

★ ★

V-M 200-B RECORD CHANGER

Please add the following notation to your Folder 475-36 of Set No. 15, covering the V-M 200-B Record Changer.

Made by:
V-M Corporation
Fourth and Park Streets
Benton Harbor, Michigan.

The above was inadvertently omitted from the Folder by our printer.

FIELD EXPERIENCES

Here is your opportunity for passing practical service experiences to others for the benefit of all. For every service "Field Experience" published, we issue to the author a certificate that is good for one PHOTOFACT Folder Set. Since it is impossible to vertify the accuracy of contributions, we cannot be responsible for either the diagnosis made of the receiver trouble, or the results which will be obtained by following the suggested repair routine. All contributions become the property of Howard W. Sams & Co., Inc.

★

Richard D. Cole, Jr., of 5222 Arch Street, Philadelphia 39, Pennsylvania, earns a certificate for PHOTOFACT Folders with—

WESTINGHOUSE H-125, H-126

"Set operative only on the low frequency end of the band. Check the oscillator coil for 'cold soldered' joints.

WESTINGHOUSE H-122 and H-130

Set checks through very well but will only pull in one station. Check the 0.1 mfd. condenser between the oscillator section of the variable condenser and the high end of the oscillator coil. (Part 21, PHOTOFACT Folder 466-35.) "

★

Mr. Charles J. Sorrels, 500 State Street, Garland, Texas, sends us the following field experience—

PHILCO 46-1201 RECORD CHANGER

"Symptom: Will not cut-off at end of record. The tone arm catches on the return, and will not release without being moved by hand.

This changer has a rubber ratchet which is worked by the movement of the tone arm in the eccentric grooves at the end of a record. One side of the ratchet is coupled to a mercury switch and the other to an arm which is coupled to the shaft that connects the tone arm. If this connection gets shifted just right it causes the rubber coated plate to strike the ratchet on the switch at the wrong time. This causes the tone arm to freeze in the center position. The cure is to put the tone-arm in the finished record position, loosen the screw that connects the arm underneath to the shaft and adjust this arm until the rubber ball on the ratchet of the switch is centered on the rubber coated plate at the end of the arm. Re-tighten the screw. The switch should operate after about three movements back and forth of the tone arm."

★

Mr. Charlie F. Hall, Hall's Radio Service, 616 Washington Street, Red Bluff, California, sends the following:

ZENITH, 6G001—6G001Y
(PHOTOFACT No. 463-14)

"Dead or intermittent although all tubes and voltages check O.K. (can be cured for short time by replacing 1A6 tube).

Cause and Remedy

"Replace resistor No. 36B. This resistor increases in value from 950 ohms to around 1,500 ohms when hot lowering filament voltage to a point where converter tube will not oscillate."

★

Jessie Chewning, Service Manager of Western Radio, Western At Moss, Peoria 5, Illinois, wins a certificate for a PHOTOFACT Folder Set for the following:

ADMIRAL 10A1
(PHOTOFACT 463-30)

"Set dead or intermittent. Check the 20 mmf. mica condenser inside the interstage i.f. can."

★

Mr. Forrest Knaack, of the Storebeck Hardware, 308 East Main Street, Waupun, Wisconsin, sends us this Field Experience.

PHILCO 46-1209, 46-480, CODE 121 ONLY

"Drifting of push-buttons is caused by the 285 mmf. and 485 mmf. silver mica condensers in the push-button circuit. The remedy is replacement.

"Replacing the 7F8 and changing the 4,700 ohm first i.f. resistor also helps to reduce drift." (Editor's note: See "Field Experience" in PHOTOFACT SERVICER No. 11.)

★

As a matter of sound business principles, it is seldom desirable to modify the circuit in a customer's receiver. A "Field Experience" sent us by Mr. Orson E. Millis, of Millis Radio Service, Marshall, Minnesota, is an exception of this rule. Because Mr. Millis' suggestion has a rather universal application we have reworded his service hint, rather than leaving it restricted to one model.

MOTORBOATING

Motorboating on the simpler five- and six-tube sets is frequently caused by common coupling in the power supply circuit, and can be corrected by adding a decoupling resistor and by-pass condenser in the B-plus lead to the second I.F. transformer. A value of 5,000 ohms and 0.05 mfd. is satisfactory for most applications.

★

Henry A. Shelleday, of Shellrich Electronics Corporation, Box 92, West Milford, New Jersey, tells us—

PHILCO RECORD PLAYER M-7

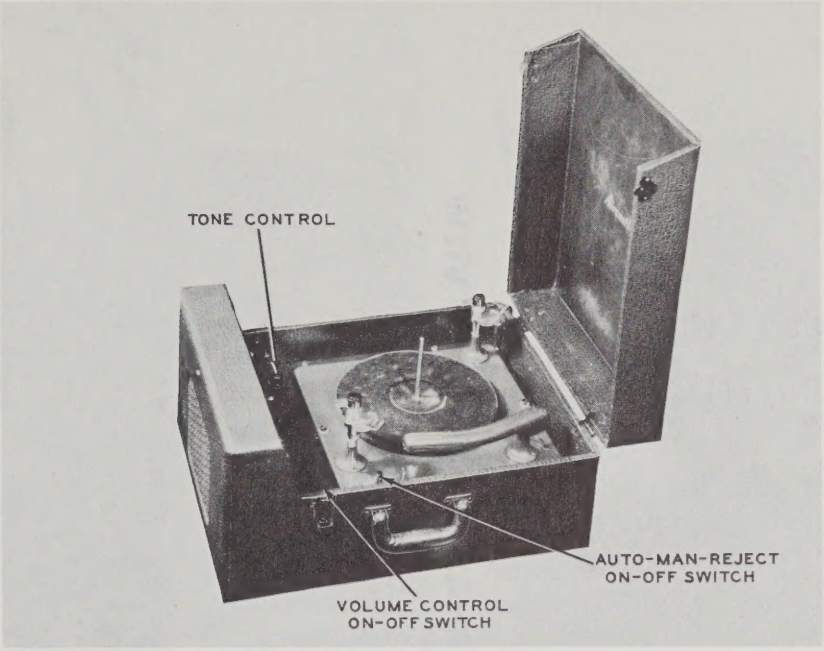
"On Philco Record Player, Model M-7, in the Model 1201 combination a bad hum may be encountered, the cause of which is quite difficult to locate. In several cases I have found this to be due to a short or high resistance leak through worn insulation at the point where the line goes through the shaft of the mercury switch. The cure is simple . . . remove the line, insulate it and secure it outside the shaft, making sure there is sufficient flexibility to allow free movement of the switch."

PUBLICATION DATES

When will other sets of PHOTOFACT Folders be published?

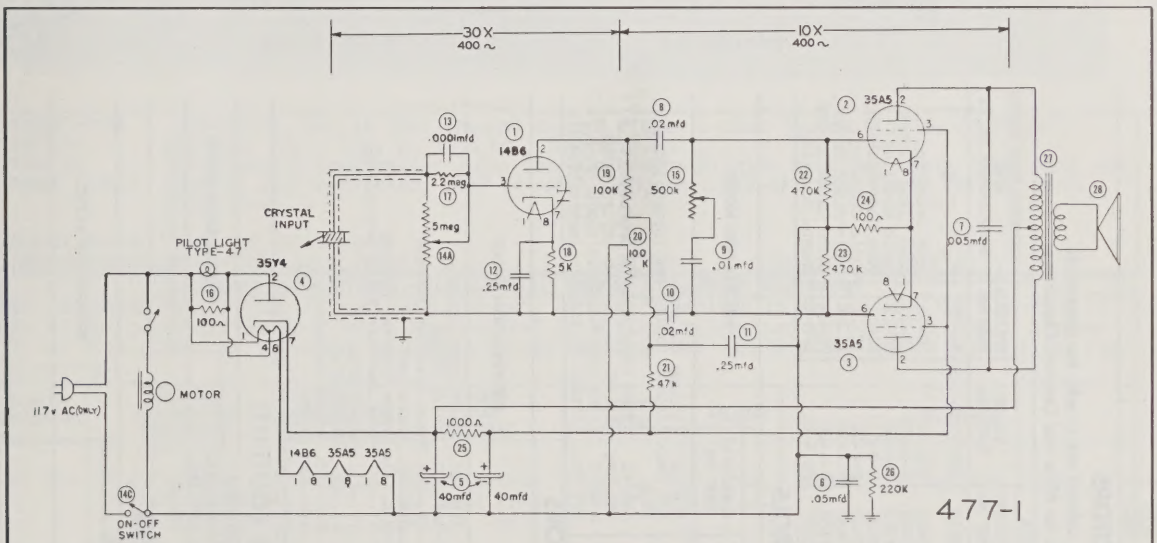
Volume 2—Set No. 18 ..... **April 25**
Volume 2—Set No. 19 ..... **May 15**

If you have been unable to get any issues of PHOTOFACT *Folder Sets, send your order and money directly to us and we will see that you are supplied.*



AIRCASTLE MODEL 641

TRADE NAME	Aircastle Model 641
MANUFACTURER	Spiegel, Inc., 1061 W. 35th St., Chicago, Ill.
TYPE SET	AC Operated Record Player with 4 Tube Amp. and speaker.
TUBES (FOUR)	Types, 14B6 Audio Amp. & Phase Inverter, 2 - 35A5 Power Output, 35Y4 Rectifier.
POWER SUPPLY	105-125 Volts AC RATING .265 Amp. @ 117V AC



VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	14B6	13.5V.AC	90V.DC	0V.	15V.DC	0V.	0V.	15V.DC	0V.
2	35A5	48V.AC	108V.DC	108V.DC	0V.	0V.	0V.	7.2V.DC	13.5V.AC
3	35A5	87V.AC	109V.DC	108V.DC	0V.	0V.	0V.	7.2 V.DC	48V.AC
4	35Y4	117V.AC	113V.AC	0V.	113V.AC	0V.	0V.	113V.DC	87V.AC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	14B6	12Ω	287 KΩ	5MEG.	113 KΩ	INF.	INF.	113KΩ	0Ω
2	35A5	41Ω	140KΩ	140KΩ	INF.	0Ω	430KΩ	92Ω	12Ω
3	35A5	72Ω	140 KΩ	140KΩ	0Ω	0Ω	410 KΩ	92Ω	41Ω
4	35Y4	100Ω	97Ω	INF.	97Ω	INF.	0Ω	140KΩ	72Ω

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

HOWARD W. SAMS & CO., INC. Indianapolis, Indiana

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed." "Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1947 by Howard W. Sams & Co., Inc., Indianapolis, Indiana, U. S. A. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc."

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		AIRCASTLE PART No.	STANDARD REPLACEMENT		
1	AF & Phase Inv.	14B6	14B6	8W	
2	Power Output	35A5	35A5	6AA	
3	" "	35A5	35A5	6AA	
4	Rectifier	35Y4	35Y4	5AL	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT	AIRCASTLE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	
5A	30	150	A25.019	PRSA150-40-	EZ3315	2N513	DSB-2x30-150	TA-330	Filter - Red
B	30	150		40					" - "
6	.05	600		684-05	DT6S5	TP426	S-6-05	TC-15	Line Isolation
7	.005	600		684-005	DT6D5	TP408	S-6-005	TC-25	35A5 Plate Bypass
8	.02	200		484-02	DT4S2	TP423	S-4-02	TC-12	Audio Coupling
9	.01	400		484-01	DT4S1	TP421	S-4-01	TC-11	Tone Compensation
10	.02	200		484-02	DT4S2	TP423	S-4-02	TC-12	Audio Coupling
11	.25	200		484-.25	DT4P25	TP430	S-4-25	TC-25	Audio Plate Decoup.
12	.25	200		484-.25	DT4P25	TP430	S-4-25	TC-25	Audio Cath. Bypass
13	100	500		1468-0001	5W5T1	MC235	MO.5-31	1FM-31	Phono. Coupling

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA				INSTALLATION NOTES
	RESIST-ANCE	WATTS	AIRCASTLE PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
14A	500KΩ	1	A-9.067	MR48	D13-133	M-60-Z	Volume Control
B	Shaft		Not Req.	Not Req.	A	Not Req.	Attach to 14A per instructions
C	Switch		" "	M26	41	SW-A	" " " " "
15A	500KΩ	1		MR48	D13-133	M-60-Z	Tone Control-Late production
B	Shaft			Not Req.	A	Not Req.	Attach to 15A per instructions
15A	1 Meg.	1	A-9.068	MR53	D13-137	M-63-Z	Tone Control-Early production
B	Shaft		Not Req.	Not Req.	A	Not Req.	Attach to 15A per instructions

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	AIRCASTLE PART No.	IRC PART No.	
16	100Ω	1		BT-1-100	Br.-Blk.-Br. Pilot Light Shunt
17	2.2 Meg.	½		BTS-2.2 Meg.	Red-Red-Grn. Series Phono
18	4700Ω	½		BTS-4700	Yl.-Vi.-Red Phase Inverter Cathode
19	100KΩ	½		BTS-100K	Br.-Blk.-Yl. Plate Load
20	100KΩ	½		BTS-100K	Br.-Blk.-Yl. Phase Inverter Cathode
21	47KΩ	½		BTS-47K	Yl.-Vi.-Or. Phase Inverter Plate Decoupling
22	470KΩ	½		BTS-470K	Yl.-Vi.-Yl. Output Grid
23	470KΩ	½		BTS-470K	Yl.-Vi.-Yl. Output Grid
24	100Ω	1		BT-1-100	Br.-Blk.-Br. Output Cathode
25	1000Ω	1		BT-1-1000	Br.-Blk.-Red Filter
26	220KΩ	½		BTS-220K	Red-Red-Yl. Line Isolation

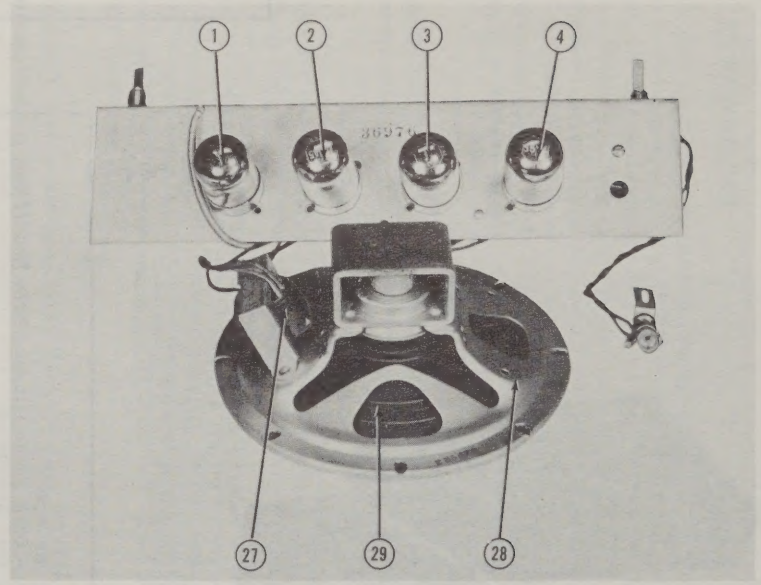
TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		AIRCASTLE PART No.	STANCOR PART No.	THORDAR'N PART No.		
	PRI.	SEC.	PRI.	SEC.					
27	2000Ω CT	3.3Ω	280Ω	.35Ω	Part of C-11.039	A-3856‡	T22S47		‡Universal transformer

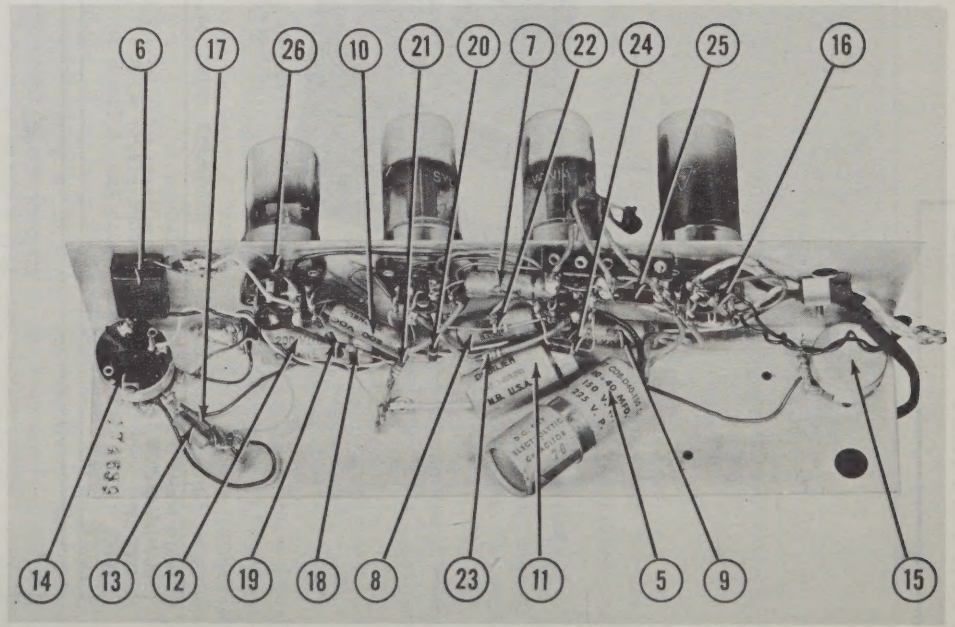
SPEAKER

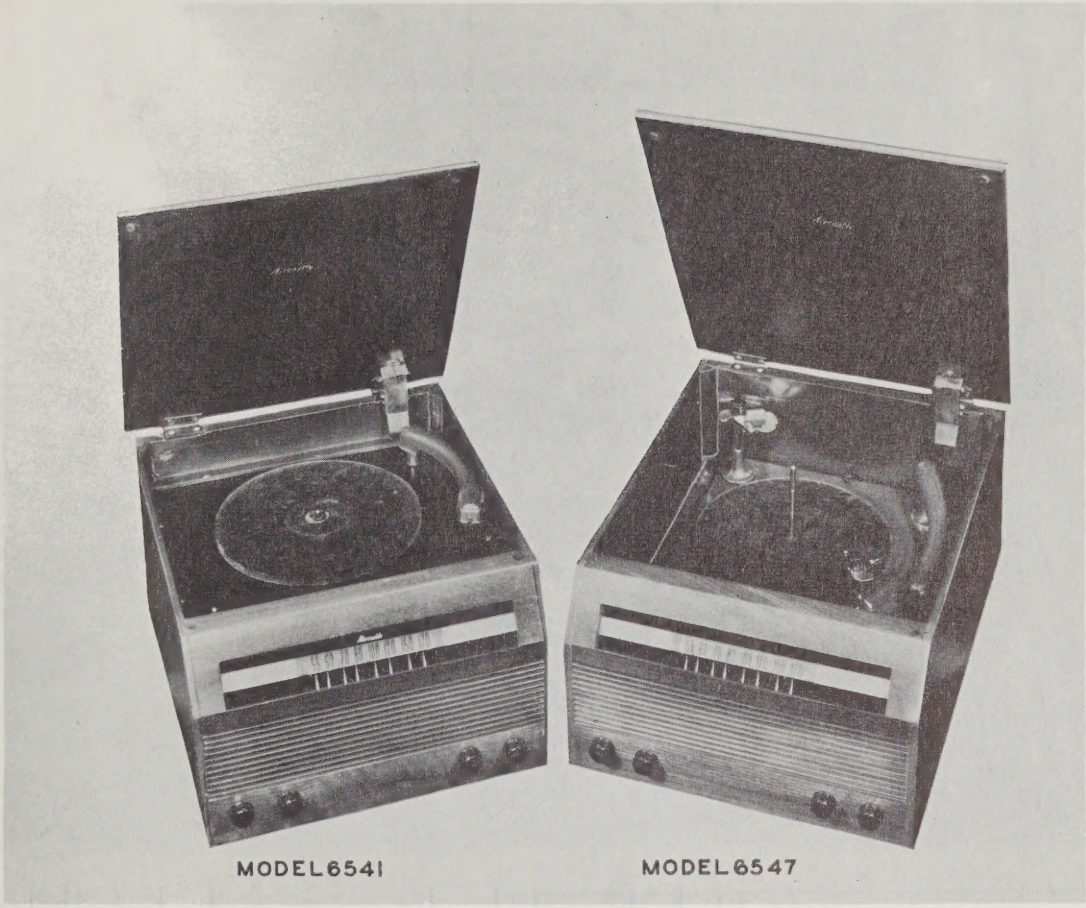
ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			AIRCASTLE PART No.	JENSEN PART No.		
	FIELD	VC IMP.		ST-109		
28A	PM	3.3Ω	C-11.039	Mod. P6-W		
B			C-11.038			Alternate Speaker
	CONE DIA.	VC DIA.				
29	6"	½"	NOT READILY REPLACEABLE - USE COMPLETE SPEAKER UNIT.			

CHASSIS—TOP VIEW



CHASSIS—BOTTOM VIEW





MODEL 6541 MODEL 6547

AIRCASTLE
MODELS 6541, 6547

AIRCASTLE
MODELS 6541, 6547

TRADE NAME	Aircastle, Models 6541 (Manual Record Player), 6547 (Automatic Record Player)
SUPPLIER	Spiegel Inc., 1061 W. 35th St., New York, N.Y.
TYPE SET	AC Operated Combination Auto. Phono.-Superheterodyne Receiver, Self Cont. Loop Ant.
TUBES (FIVE)	Types, 14Q7 Converter, 14A7 IF Amp., 14B6 Det.-AVC-AF, 50A5 Power Output, 35Y4 Rectifier.
POWER SUPPLY	105-125 Volts AC
TUNING RANGE—BROADCAST	540-1700KC RATING .240 Amps. @ 117V AC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use isolation transformer if available. If not, connect capacitor in series with the low side of the signal generator and B-. Set volume control at maximum volume and output from signal generator no higher than is necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.01 MFD.	High side to stator of rear section of variable. Low side to B-.	455KC	Quiet point at high freq. end of dial.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output.
100 MMF.	High side to ant. lead. Low side to chassis.	1720KC	High freq. end (Fully clockwise)	"	A5	" " " "
100 MMF.	"	1500KC	Tune for maximum output.	"	A6	" " " "

HOWARD W. SAMS & CO., INC. **Indianapolis Indiana**

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed."
"Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1947 by Howard W. Sams & Co., Inc., Indianapolis, Indiana, U. S. A. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc."

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: AIRCASTLE PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	Converter	14Q7	14Q7	8AL	
2	IF Amp.	14A7	14A7	8V	
3	Det.-AVC-AF	14B6	14B6	8W	
4	Power Output	50A5	50A5	6AA	
5	Rectifier	35Y4	35Y4	5AL	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: AIRCASTLE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
6A	40	150	A25.019	PRSA150-40-	BRL4415	2N511	M-2x40-150	TA-440	Filter
B	40	150		40					"
7	.05	400		484-05	DT4S5	TP426	S-4-05	TC-15	Line Filter
8	.02	400		484-02	DT4S2	TP423	S-4-02	TC-12	50A5 Plate Bypass
9	.02	400		484-02	DT4S2	TP423	S-4-02	TC-12	Audio Coupling
10	.005	600		684-005	DT6D5	TP408	S-6-005	TC-25	" "
11	.005	600		684-005	DT6D5	TP408	S-6-005	TC-25	AVC Filter
12	.25	200		484-.25	DT4P25	TP430	S-4-25	TC-2	Line Isolation
13	.002	200		484-002	DT6D2	TP405	S-6-002	TC-22	Ant. Coupling
14	.05	400		484-05	DT4S5	TP426	S-4-05	TC-15	Tone Compensation
15	250	500		1468-00025	5W5T25	MC240	MO.5-325	1FM-325	Audio Plate Bypass
16	250	500		1468-00025	5W5T25	MC240	MO.5-325	1FM-325	IF Bypass Vol. Cont.
17	50	500		1468-00005	5W5Q5	MC225	MO.5-45	1FM-45	Phono. Coupling

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: AIRCASTLE PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
18A	500KΩ	1	A-9.066	MR48	D13-133	M-60-Z	Volume Control
B	Shaft		Not Req.	Not Req.	A	Not Req.	Attach to 18A per instructions
C	Switch	•	" "	M26	41	SW-A	" " " " "
19A	100KΩ	1	A-9.068	MR39	D13-128	M-51-Z	Tone Control
B	Shaft		Not Req.	Not Req.	A	Not Req.	Attach to 19A per instructions

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: AIRCASTLE PART No.	IRC PART No.	IDENTIFICATION CODES
20	22KΩ	½		BTS-22K	Red-Red-Or. Oscillator Grid
21	10 Meg.	½		BTS-10 Meg.	Br.-Blk.-Blue AVC Network
22	3.3 Meg.	½		BTS-3.3 Meg.	Or.-Or.-Grn. AVC Network
23	10 Meg.	½		BTS-10 Meg.	Br.-Blk.-Blue 1st AF Grid
24	470KΩ	½		BTS-470K	Yl.-Vi.-Yl. 1st AF Plate Load
25	470KΩ	½		BTS-470K	Yl.-Vi.-Yl. Output Grid
26	150Ω	½		BW-½-150	Br.-Grn.-Br. Output Cathode
27	220KΩ	½		BTS-220K	Red-Red-Yl. Line Isolation
28	1000Ω	2		BT-2-1000	Br.-Blk.-Red Filter
29	2.2 Meg.	½		BTS-2.2 Meg.	Red-Red-Grn. Series Phono.

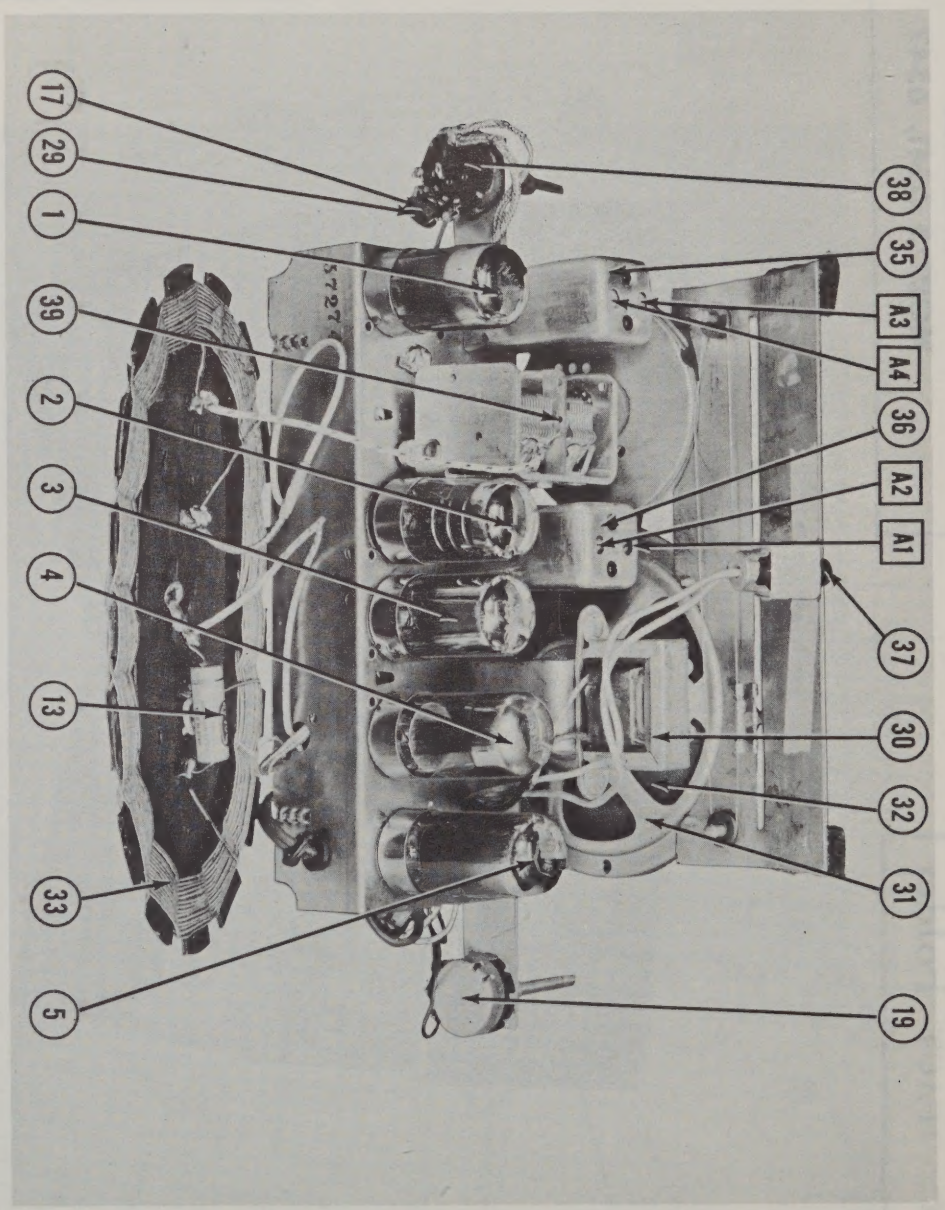
TRANSFORMER (OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: AIRCASTLE PART No.	STANCOR PART No.	THORDAR'N PART No.		INSTALLATION NOTES
30	1700Ω	3.3Ω	155Ω	.5Ω	Part of B-11.037	A-3876	T-22S45		

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA: AIRCASTLE PART No.	JENSEN PART No.		INSTALLATION NOTES
	FIELD	VC IMP.		ST-105		
31	PM	3.3Ω	B-11.037	Mod. P5-X		
	CONE DIA.	VC DIA.				
32	4-5/8"	9/16"	NOT READILY	REPLACEABLE	-USE COMPLETE SPEAKER UNIT.	

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

R F COILS

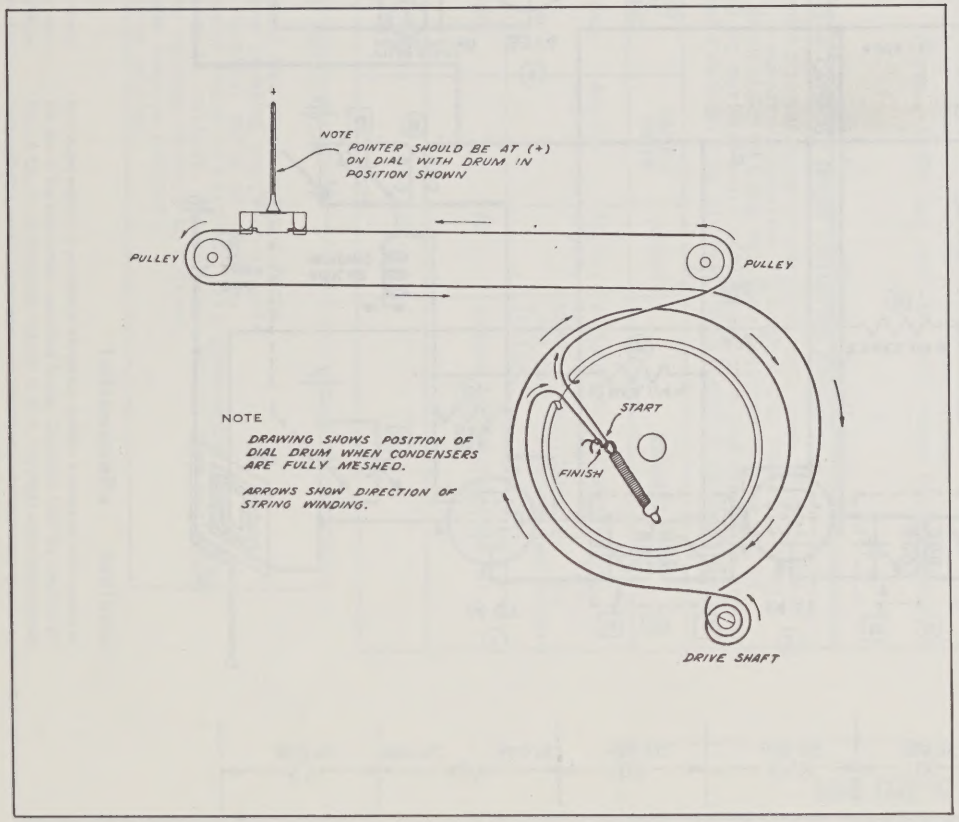
ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA AIRCASTLE PART No.	REPLACEMENT DATA MEISSNER PART No.	INSTALLATION NOTES
33	Loop Ant.	0Ω	1.3Ω	B5.006		
34	Osc. Coil	.8Ω	6.2Ω	B2.192	14-1040*	*Add 50 MMFD. cap. from grid to high side tuning cap.
35	Input IF	21.5Ω	21Ω	C2.191-1	16-6666	
36	Output IF	14.2Ω	14.5Ω	C2.191-2	16-6667	

DIAL LIGHT

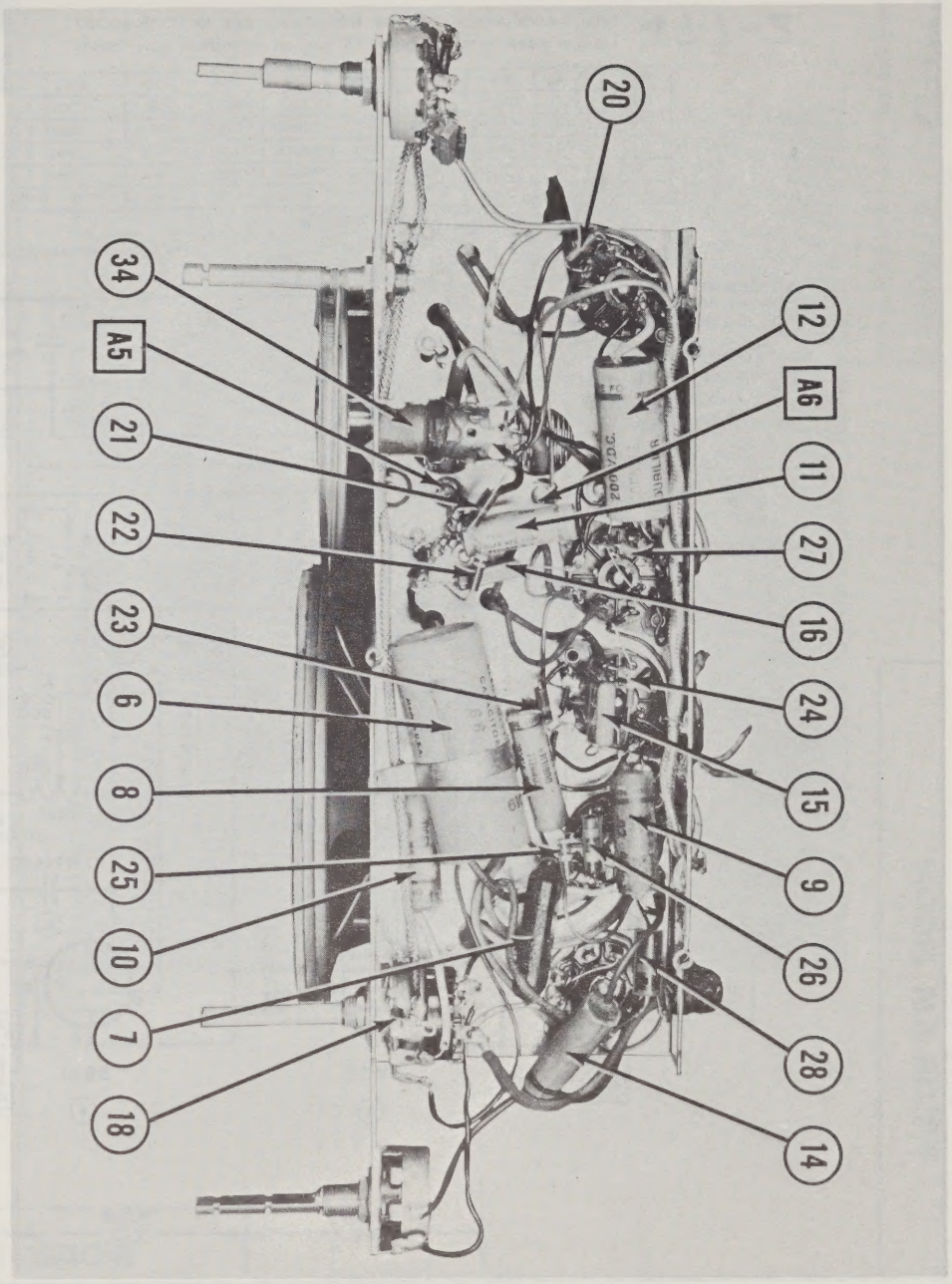
ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA AIRCASTLE PART No.		INSTALLATION NOTES
37	Bayonet	6-8	0.15	Brown			Type 47

MISCELLANEOUS

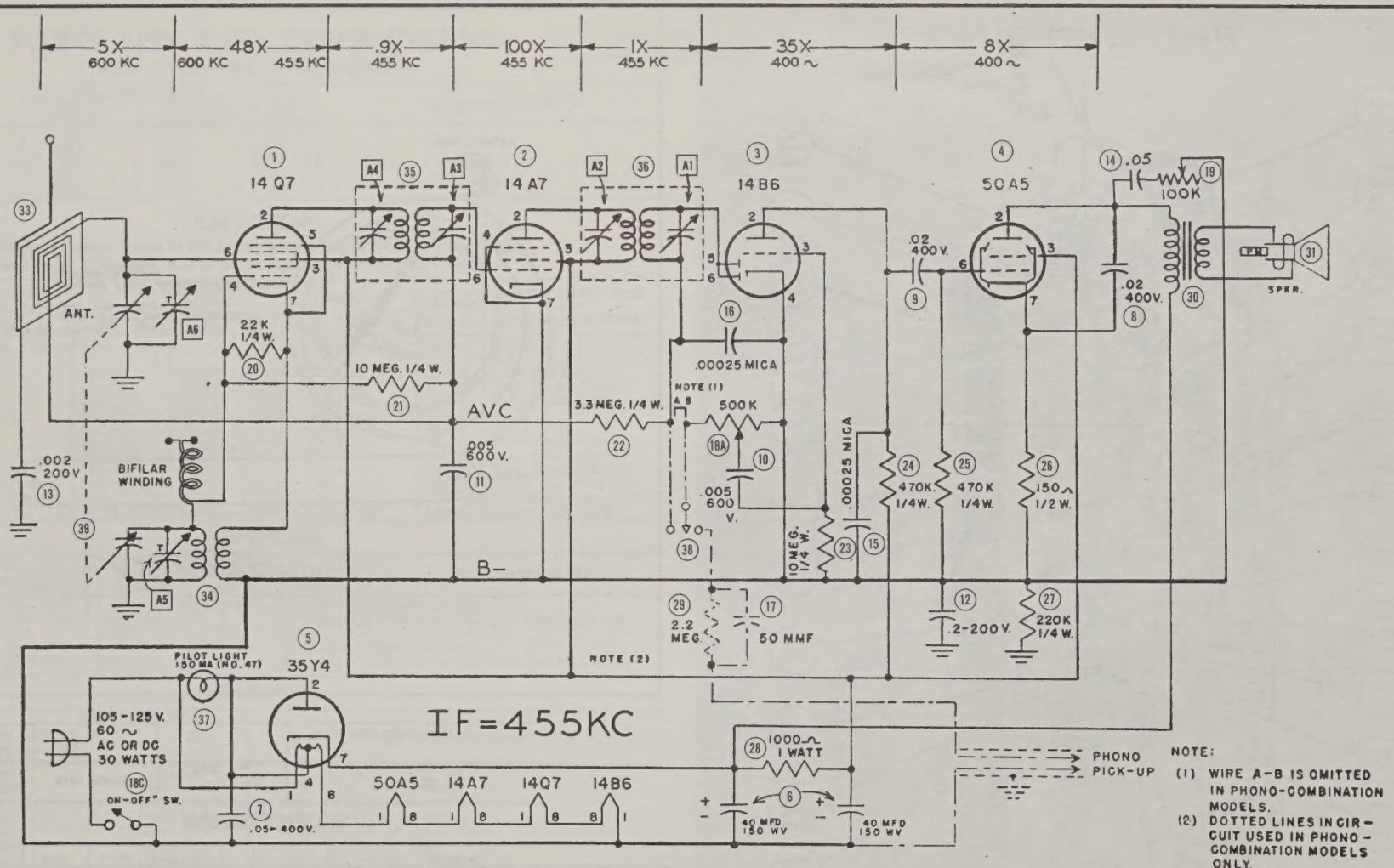
ITEM No.	PART NAME	AIRCASTLE PART No.	NOTES
38	Switch		
39	Tuning Cap.		2 Gang Variable Cap.



CHASSIS—BOTTOM VIEW



AIRCASTLE MODEL 6541, 6547



NOTE: VOLTAGE AND RESISTANCE READINGS TAKEN IN RADIO POSITION.

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	14Q7	25V.AC	100V.DC	100V.DC	-6.5V.DC	0V.	-4V.DC	0V.	13V.AC
2	14A7	37V.AC	100V.DC	100V.DC	0V.	0V.	-4V.DC	0V.	25V.AC
3	14B6	0V.	62V.DC	-55V.DC	0V.	-55V.DC	-55V.DC	0V.	13V.AC
4	50A5	87V.AC	112V.DC	100V.DC	0V.	0V.	0V.	6.3V.DC	37V.AC
5	35Y4	117V.AC	113V.AC	0V.	113V.AC	0V.	0V.	118V.DC	87V.AC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	14Q7	22Ω	100KΩ	100KΩ	20KΩ	.5Ω	2.3MEG.	.5Ω	12Ω
2	14A7	33Ω	100KΩ	100KΩ	0Ω	205KΩ	2.3MEG.	0Ω	22Ω
3	14B6	0Ω	570KΩ	10MEG.	0Ω	540KΩ	540KΩ	0Ω	12Ω
4	50A5	75Ω	100KΩ	100KΩ	0Ω	0Ω	490KΩ	135Ω	33Ω
5	35Y4	100Ω	97Ω	INF.	97Ω	INF.	INF.	100KΩ	75Ω

NOTE:
(1) WIRE A-B IS OMITTED IN PHONO-COMBINATION MODELS.
(2) DOTTED LINES IN CIRCUIT USED IN PHONO-COMBINATION MODELS ONLY.

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

477-2

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

AIR KNIGHT
MODEL N 5-RD 291

AIR KNIGHT MODEL N5-RD291

TRADE NAME	Air Knight, Model N5-RD291
SUPPLIER	Butler Bros., Randolph & Canal Sts., Chicago, Ill.
TYPE SET	AC Operated Phono-Radio Combination Superheterodyne with Loop Antenna
TUBES (FIVE)	Types, 12BE6 Converter, 12BA6 IF Amp., 12AT6 Det.-AVC-AF, 50B5 Power Output, 35W4 Rectifier.
POWER SUPPLY	110-120 Volts AC
TUNING RANGE—BROADCAST	540-1720KC RATING .280 Amp. @ 117 Volts AC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer, turn tuning cap. fully closed and set pointer parallel with base of dial. Use isolation transformer if available. If not, connect a capacitor in series with low side of signal generator and chassis. Loop should be maintained in same relative position to chassis as when receiver is in cabinet. Volume control at maximum position. Output of signal generator should be no higher than necessary to obtain output reading. Use an insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD.	High side to rear stator of tuning cap. Low side to chassis.	455KC	Tuning cap. open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If isolation transformer is not used, reduce dummy ant. to .001 MFD. to reduce hum modulation.
200MMFD	High side to ant. lug. Low side to ext. gnd. lug.	1500KC	1500KC	"	A5	Adjust for maximum output.
200MMFD	"	1400KC	Tune for maximum output.	"	A6	" " " "

DISASSEMBLY INSTRUCTIONS

1. Remove the screw type volume, tuning and phono-control knobs.
2. Unsolder the phono-motor leads from terminal strip on chassis.
3. Unsolder phono-pickup leads from terminal strip on chassis.
4. Remove four wood screws holding motor board to cabinet. Tilt phono-motor board up.
5. Remove lock nut holding phono-switch to cabinet. Remove phono-switch from cabinet.
6. Remove two hex head machine screws holding chassis to cabinet.
7. Remove four staples holding antenna loop to cabinet.
8. Remove chassis and antenna loop from cabinet.

HOWARD W. SAMS & CO., INC. **Indianapolis Indiana**

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed." "Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1947 by Howard W. Sams & Co., Inc., Indianapolis, Indiana, U. S. A. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc."

PARTS LIST AND DESCRIPTIONS

AIR KNIGHT
NOLL N5-RL291

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: AIR KNIGHT PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	Converter	12BE6	12BE6	7CH	
2	IF Amp.	12BA6	12BA6	7CC	
3	Det.-AVC-AF	12AT6	12AT6	7BT	
4	Power Output	50B5	50B5	7BZ	
5	Rectifier	35W4	35W4	5BZ	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: AIR KNIGHT PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
6A	50	150		PRSA150-50-	BRD3515	2N520	M-5030-150	TA-530	Filter - Green
B	30	150		30					" - Red
7	.05	400		484-05	DT4S5	TP426	S-4-05	TC-15	Line Filter
8	.05	400		484-05	DT4S5	TP426	S-4-05	TC-15	Output Plate Bypass
9	.01	400		484-01	DT4S1	TP421	S-4-01	TC-11	Audio Coupling
10	.01	400		484-01	DT4S1	TP421	S-4-01	TC-11	" "
11	.05	200		484-05	DT4S5	TP426	S-4-05	TC-15	AVC Filter
12	.005	100		484-005	DT6D5	TP408	S-6-005	TC-25	Tone Compensation
13	250	500		1468-00025	5W5T25	MC240	MO.5-325	1FM-325	Audio Plate Bypass
14	250	500		1468-00025	5W5T25	MC240	MO.5-325	1FM-325	IF Bypass Diode
15	50	500		1458-00005	5W5Q5	MC225	MO.5-45	1FM-45	Osc. Grid Capacitor
16	10	500		1468-00001	5W5Q1	MC215	MO.5-41	1FM-41	Fixed Trimmer

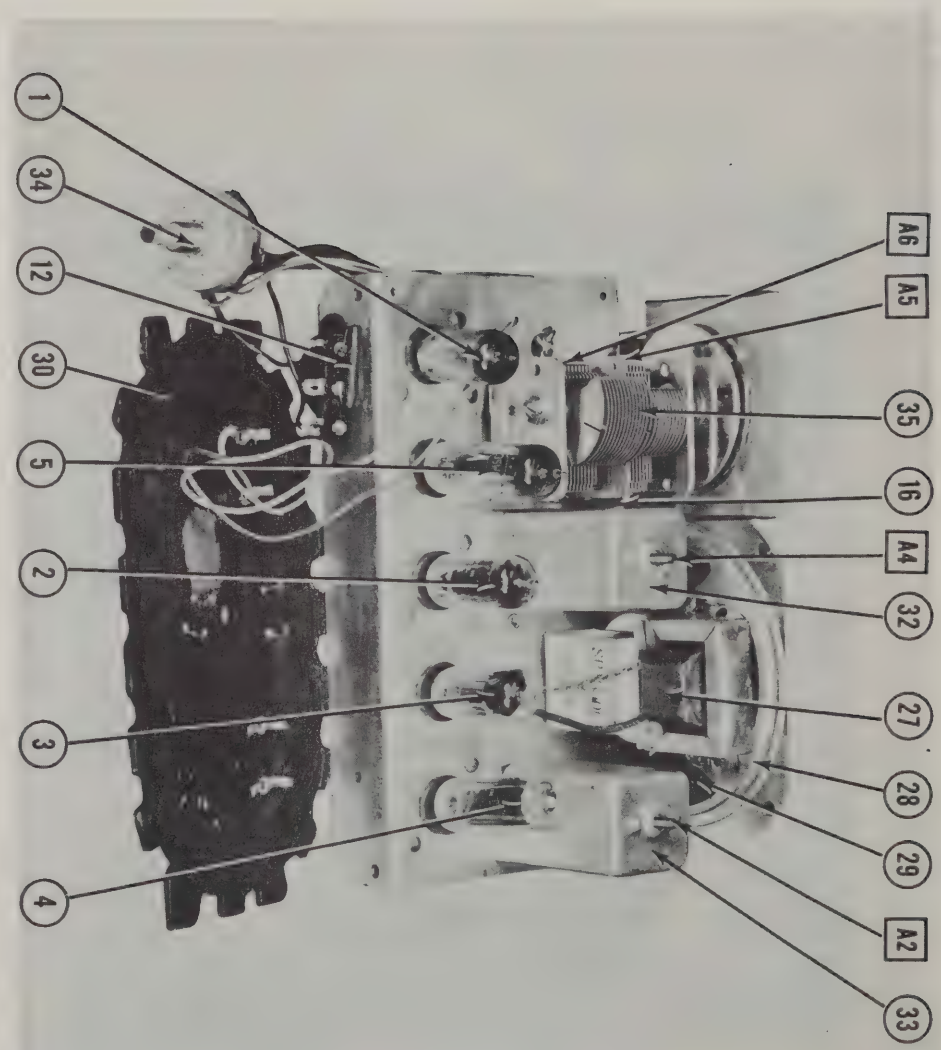
CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: AIR KNIGHT PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
17A	1 Meg.	1		MK402	D13-137	AM-63-Z	Volume Control
B	Shaft			Not Req.	E	KSS-3	Attach to 17A per instructions
C	Switch			M26	41	SW-A	" " " " "

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: AIR KNIGHT PART No.	IRC PART No.	IDENTIFICATION CODES
18	20KΩ	½		BTS-22K	Red-Blk.-Or. Oscillator Grid
19	1000Ω	½		BTS-1000	Br.-Blk.-Red Parasitic Suppressor
20	150Ω	½		BW-½-150	Br.-Grn.-Br. IF Cathode
21	2 Meg.	½		BTS-2.2 Meg.	Red-Blk.-Grn. AVC Network
22	10 Meg.	½		BTS-10 Meg.	Br.-Blk.-Blue AF Grid
23	220KΩ	½		BTS-220K	Red-Red-Yl. AF Plate Load
24	500KΩ	½		BTS-470K	Grn.-Blk.-Yl. Output Grid
25	150Ω	½		BW-½-150	Br.-Grn.-Br. Output Cathode
26	1000Ω	2		BT-2-1000	Br.-Blk.-Red Filter

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		AIR KNIGHT PART No.	STANCOR PART No.	THORDAR'N PART No.	UTAH PART No.	
	PRI.	SEC.	PRI.	SEC.					
27	1990Ω	3.25Ω	188Ω	.9Ω	TO-10000	A-3876*	T22S45*		*Bend mounting tabs down, file out slots and mount on original bracket.

SPEAKER

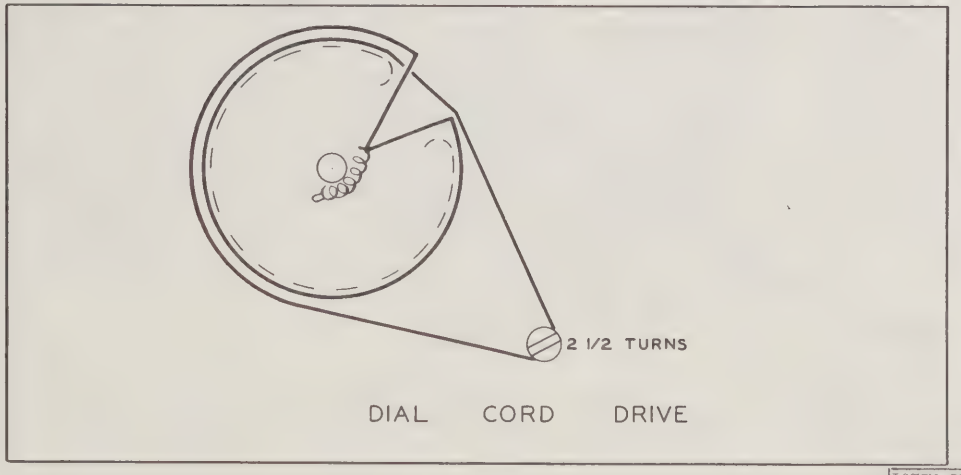
ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			AIR KNIGHT PART No.	JENSEN PART No.		
	FIELD	VC IMP.		ST-113		
28	PM	3.25Ω	SR-10000	Mod. P4-X		
	CONE DIA.	VC DIA.				
29	3-15/16"	1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT			

R F COILS

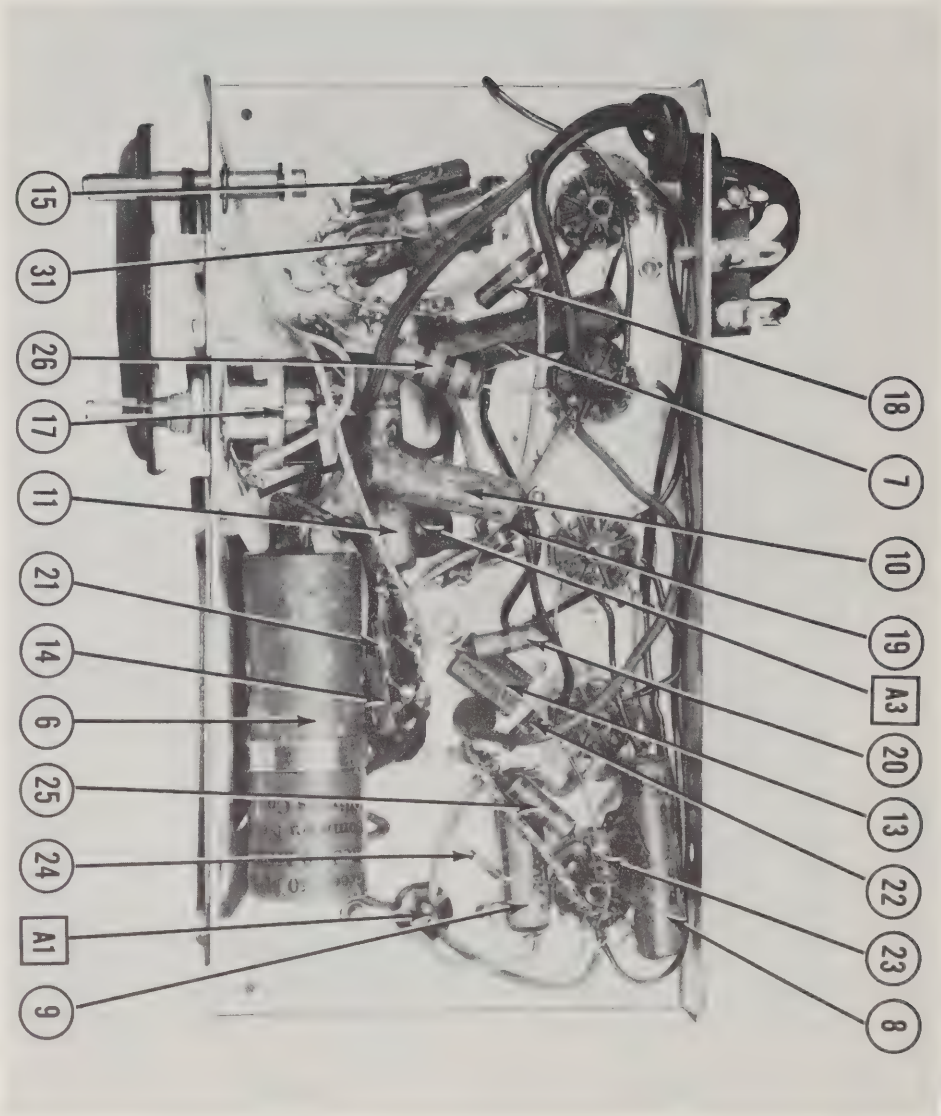
ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	AIR KNIGHT PART No.	MEISSNER PART No.	
30	Loop Ant.	.1Ω	3Ω			
31	Osc. Coil		6.5Ω		14-1040	
32	Input IF	14.5Ω	15Ω		16-5740	
33	Output IF	16.5Ω	16Ω		16-5742	

MISCELLANEOUS

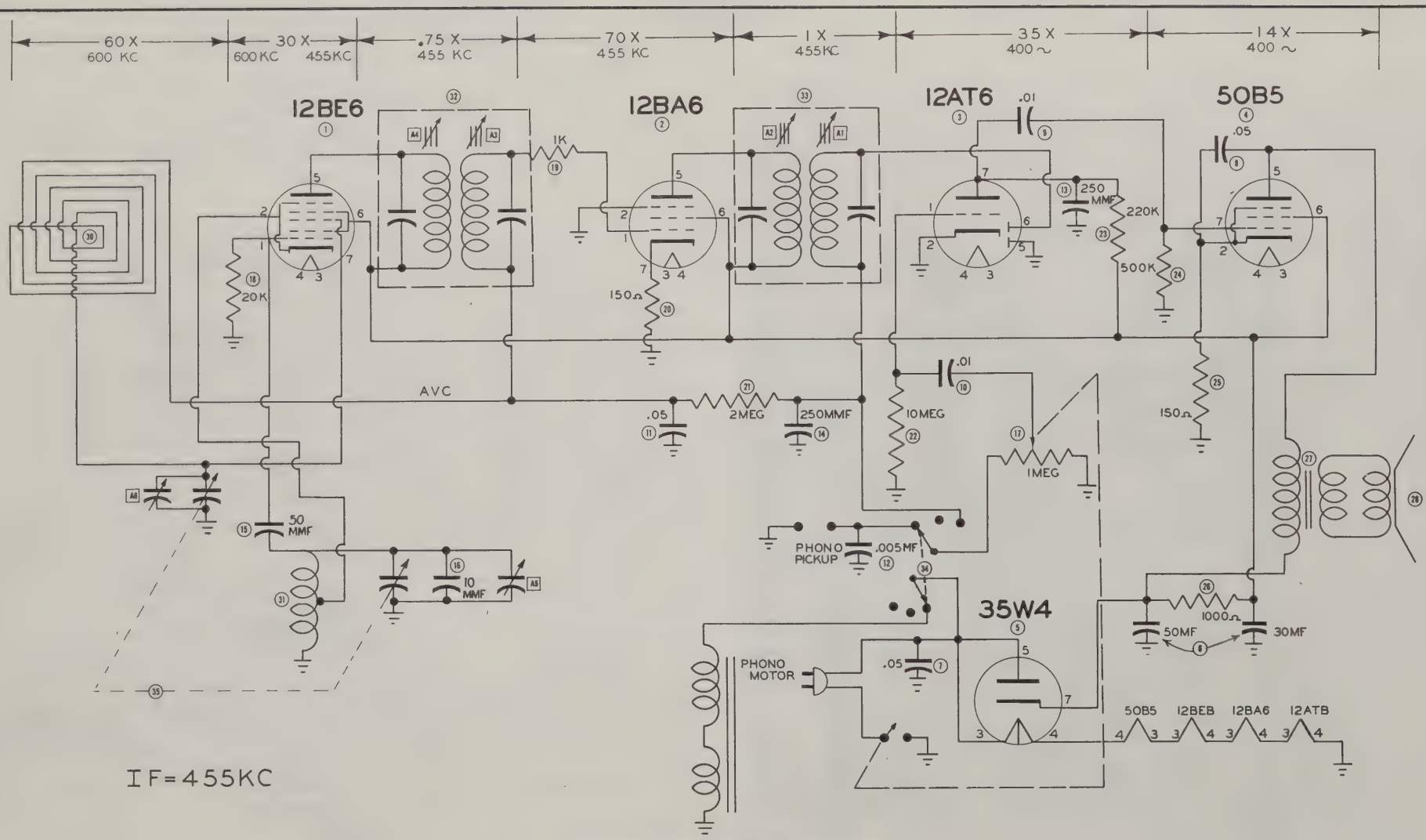
ITEM No.	PART NAME	AIR KNIGHT PART No.	NOTES
34	Switch		Radio-Phono
35	2 Gang Var. Cap.		17-460 MMF, 29-192 MMF



CHASSIS—BOTTOM VIEW



MODEL NS-R291



VOLTAGE AND RESISTANCE READINGS TAKEN IN BROADCAST POSITION.

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
1	12BE6	-6.2V.DC	0V.	36V.AC	24V.AC	100V.DC	100V.DC	0V.
2	12BA6	0V.	0V.	24V.AC	12V.AC	100V.DC	100V.DC	2.1V.DC
3	12AT6	-4V.DC	0V.	12V.AC	0V.	0V.	-4V.DC	58V.DC
4	50B5	0V.	7.1V.DC	36V.AC	84V.AC	115V.DC	100V.DC	0V.
5	35W4	0V.	0V.	117V.AC	84V.AC	117V.AC	93V.AC	125V.DC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
1	12BE6	18KΩ	.5Ω	32Ω	23Ω	70KΩ	70KΩ	2.9MEG.
2	12BA6	2.9MEG.	0Ω	23Ω	12Ω	70KΩ	70KΩ	160Ω
3	12AT6	10MEG.	0Ω	12Ω	0Ω	0Ω	800KΩ	275KΩ
4	50B5	490KΩ	145Ω	32Ω	82Ω	70KΩ	70KΩ	490KΩ
5	35W4	INF.	INF.	115Ω	82Ω	115Ω	91Ω	70KΩ

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

477-3

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

AIR KNIGHT
MODEL CA-500

AIR KNIGHT
MODEL CA-500

AIR KNIGHT MODEL CA-500

TRADE NAME	Air Knight, Model CA-500
SUPPLIER	Butler Bros., Randolph & Canal Sts., Chicago 80, Ill.
TYPE SET	AC-DC Operated Superheterodyne Receiver - Self Contained Loop Antenna
TUBES (FIVE)	Types, 12BE6 Converter, 12BA6 IF Amp., 12AT6 Det.-AVC-AF, 50B5 Power Output, 35W4 Rectifier.
POWER SUPPLY	110-120 Volts AC-DC
TUNING RANGE—BROADCAST	540-1720KC RATING .270 Amp. @ 117 Volts AC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer, turn tuning capacitor fully closed and set pointer parallel with base of dial. Use isolation transformer if available. If not, connect a capacitor in series with low side of signal generator and chassis. Loop should be maintained in same relative position to chassis as when receiver is in cabinet. Volume control at maximum position, output of signal generator should be no higher than necessary to obtain output reading. Use an insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD.	High side to rear stator of tuning cap. Low side to chassis.	455KC	Tuning cap. open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If isolation transformer is not used, reduce dummy ant. to .001 MFD. to reduce hum modulation.
200MMFD.	High side to ext. ant. lug. Low side to ext. gnd. lug.	1500KC	1500KC	"	A5	Adjust for maximum output.
200MMFD.	"	1400KC	Tune for maximum output.	"	A6	" " " "

HOWARD W. SAMS & CO., INC. **Indianapolis Indiana**

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed." "Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1947 by Howard W. Sams & Co., Inc., Indianapolis, Indiana, U. S. A. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc."

PARTS LIST AND DESCRIPTIONS

AIR KNIGHT
MODEL CA-500

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: AIR KNIGHT PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	Converter	12BE6	12BE6	7CH	
2	IF Amp.	12BA6	12BA6	7CC	
3	Det.-AVC-AF	12AT6	12AT6	7BT	
4	Power Output	50B5	50B5	7BZ	
5	Rectifier	35W4	35W4	5BQ	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: AIR KNIGHT PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
6A	50	150		PRSA150-50-30	BRD3515	2N520	M-5030-150	TA-530	Filter - Green
B	30	150							" - Red
7	.05	400		484-05	DT4S5	TP426	S-4-05	TC-15	Line Filter
8	.05	200		484-05	DT4S5	TP426	S-4-05	TC-15	Output Plate Bypass
9	.01	400		484-01	DT4S1	TP421	S-4-01	TC-11	Audio Coupling
10	.01	400		484-01	DT4S1	TP421	S-4-01	TC-11	"
11	.05	400		484-05	DT4S5	TP426	S-4-05	TC-15	AVC Filter
12	250	500		1468-00025	5W5T25	MC240	M0.5-325	1FM-325	Audio Plate Bypass
13	250	500		1468-00025	5W5T25	MC240	M0.5-325	1FM-325	IF Bypass Vol. Cont.
14	50	500		1468-00005	5W5Q5	MC225	M0.5-45	1FM-45	Osc. Grid Capacitor
15	10	500		1468-00001	5W5Q1	MC215	M0.5-41	1FM-41	Fixed Trimmer

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: AIR KNIGHT PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
16A	1 Meg.	1	VC-10103	MK402	D13-137	AM-63-Z	Volume Control
B	Shaft		Not Req.	Not Req.	E	KSS-3	Attach to 16A per instructions
C	Switch		" "	M26	41	SW-A	" " " "

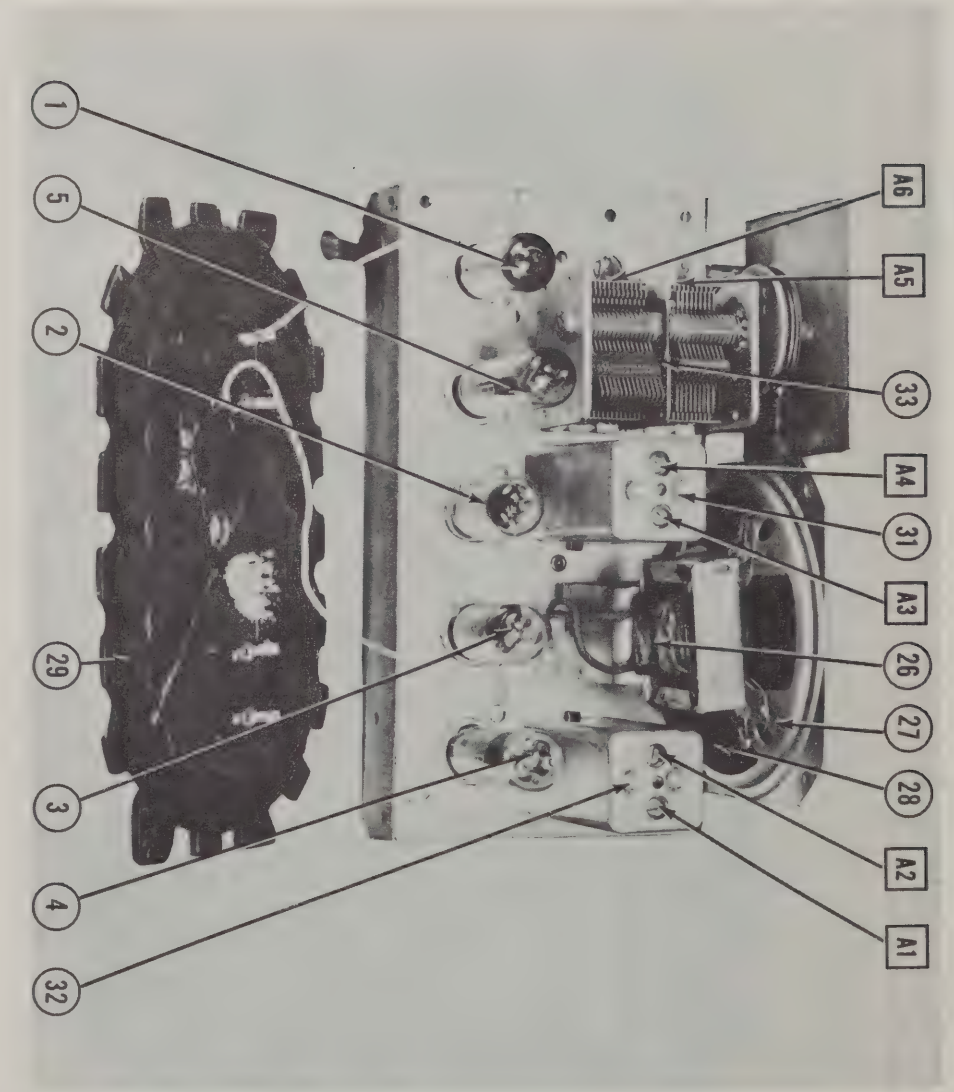
RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: AIR KNIGHT PART No.	IRC PART No.	IDENTIFICATION CODES
17	22KΩ	1/2		BTS-22K	Red-Red-Or. Oscillator Grid
18	2.2 Meg.	1/2		BTS-2.2 Meg.	Red-Red-Grn. AVC Network
19	10 Meg.	1/2		BTS-10 Meg.	Br.-Blk.-Blue AF Grid
20	270KΩ	1/2		BTS-270K	Red-Vi.-Yl. AF Plate Load
21	500KΩ	1/2		BTS-470K	Grn.-Blk.-Yl. Output Grid
22	180Ω	2		BW-2-180	Br.-Gray-Br. Output Cathode
23	820Ω	1/2		BTS-820	Gray-Red-Br. Filter
24	30Ω	1/2		BW-½-33	Or.-Blk.-Blk. Rectifier Ballast
25	150Ω	1/2		BW-½-150	Br.-Grn.-Br. IF Cathode

TRANSFORMER (OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: AIR KNIGHT PART No.	STANCOR PART No.	THORDAR'N PART No.		INSTALLATION NOTES
26	1990Ω	3.25Ω	188Ω	.9Ω	TO-10000	A-3876*	T22845*		*Bend mounting tabs down, file out slots and mount on original bracket.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

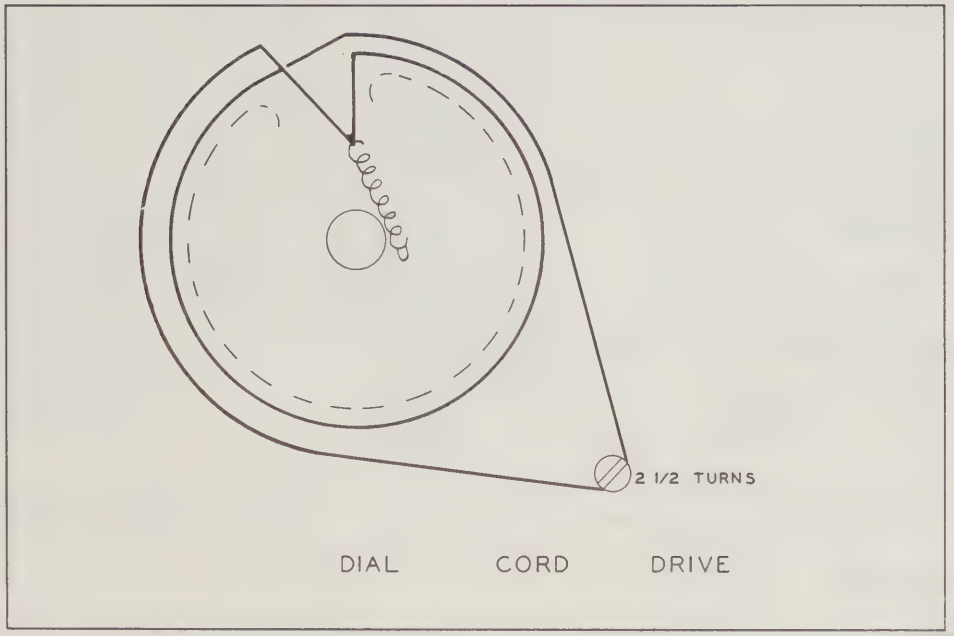
ITEM No.	RATINGS		REPLACEMENT DATA: AIR KNIGHT PART No.	JENSEN PART No.		INSTALLATION NOTES
27	FIELD PM	VC IMP. 3.35Ω	SR-10000	ST-113 Mod. P4-X		
28	CONE DIA. 3-15/16"	VC DIA. 1/2".	NOT READILY	REPLACEABLE-USE COMPLETE SPEAKER UNIT		

R F COILS

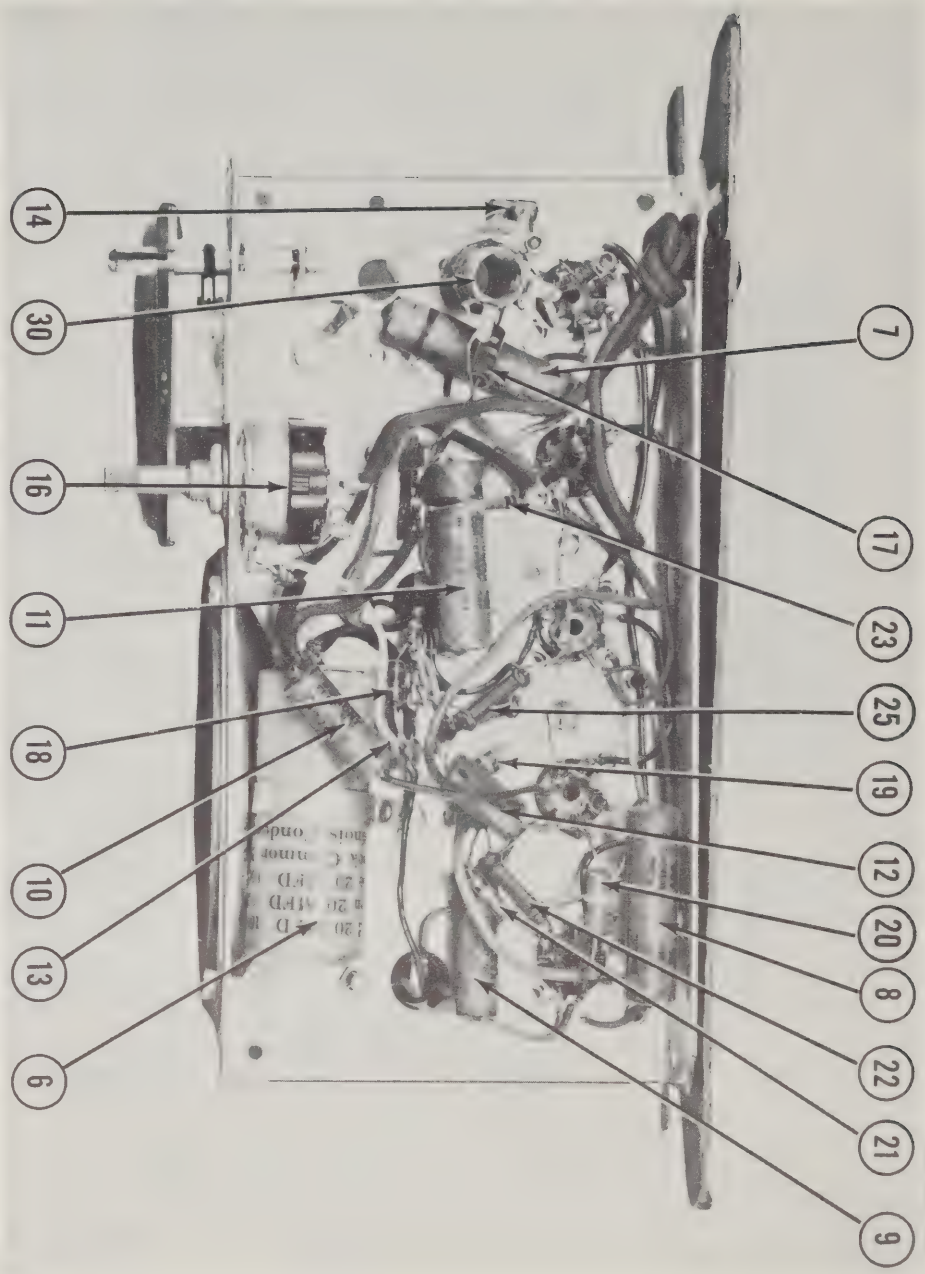
ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA: AIR KNIGHT PART No.	MEISSNER PART No.	
29	Loop Ant.	.1Ω	3Ω			
30	Osc. Coil		4Ω		14-1040	
31	Input IF	20Ω	20Ω	TS-10000	16-6658	
32	Output IF	19Ω	19Ω	TS-10001	16-6660	

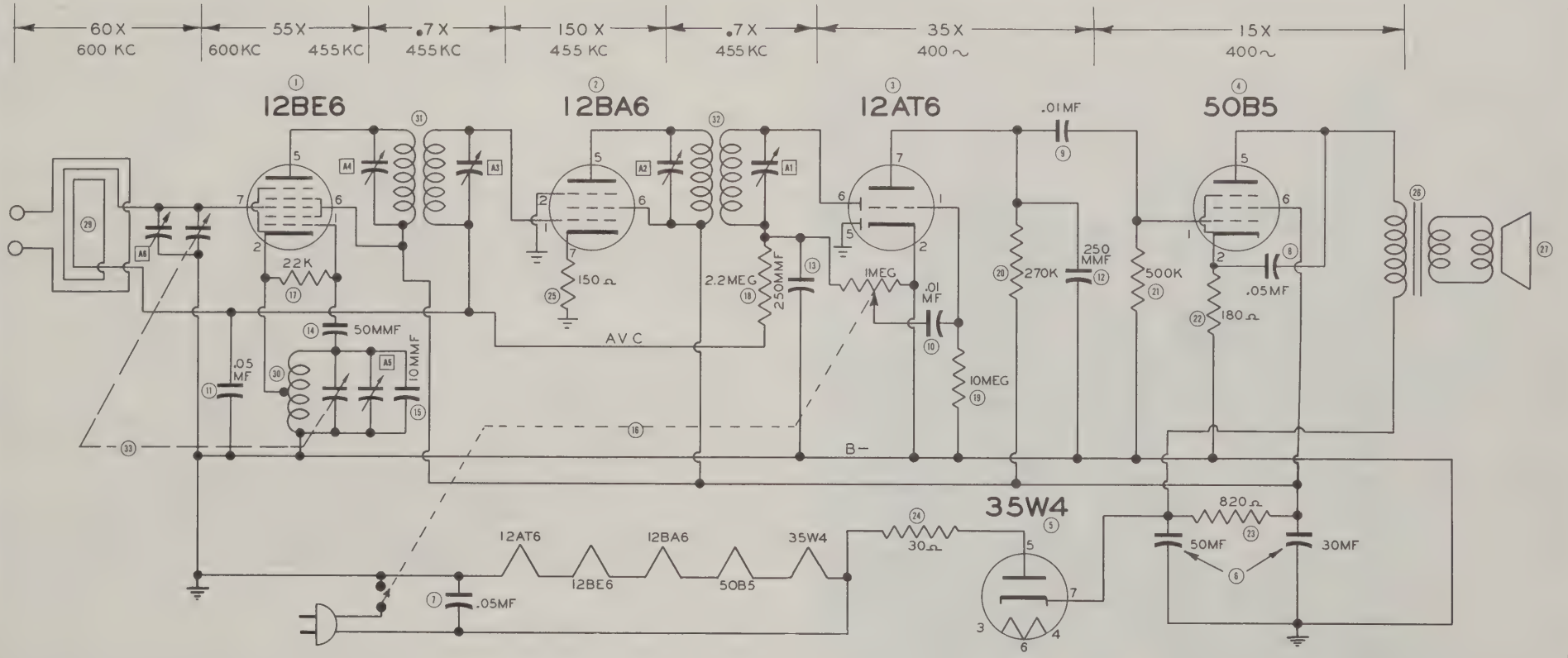
MISCELLANEOUS

ITEM No.	PART NAME	AIR KNIGHT PART No.	NOTES
33	2 Gang Var. Cap.		(20-469 MMF, 28-192 MMF)



CHASSIS—BOTTOM VIEW





IF=455KC

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
1	12BE6	-6 V DC	0 V	35 V AC	23 V AC	100 V DC	100 V DC	0 V
2	12BA6	0 V	0 V	23 V AC	10 V AC	100 V DC	100 V DC	127 V DC
3	12AT6	-.8 V DC	0 V	10 V AC	0 V	0 V	-.2 V DC	42 V DC
4	50B5	0 V	7.5 V DC	35 V AC	83 V AC	115 V DC	100 V DC	0 V
5	35W4	117 V AC	0 V	117 V AC	83 V AC	113 V AC	111 V AC	122 V DC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
1	12BE6	20 KΩ	.5 Ω	32 Ω	22 Ω	20 KΩ	20 KΩ	3 MEG
2	12BA6	3 MEG	0 Ω	22 Ω	10 Ω	20 KΩ	20 KΩ	140 Ω
3	12AT6	10MEG	0 Ω	10 Ω	0 Ω	0 Ω	875 KΩ	320 KΩ
4	50B5	520 KΩ	150 Ω	32 Ω	73 Ω	20 KΩ	20 KΩ	520 KΩ
5	35W4	100 Ω	INF	100 Ω	73 Ω	130 Ω	94 Ω	20 KΩ

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

477-4

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

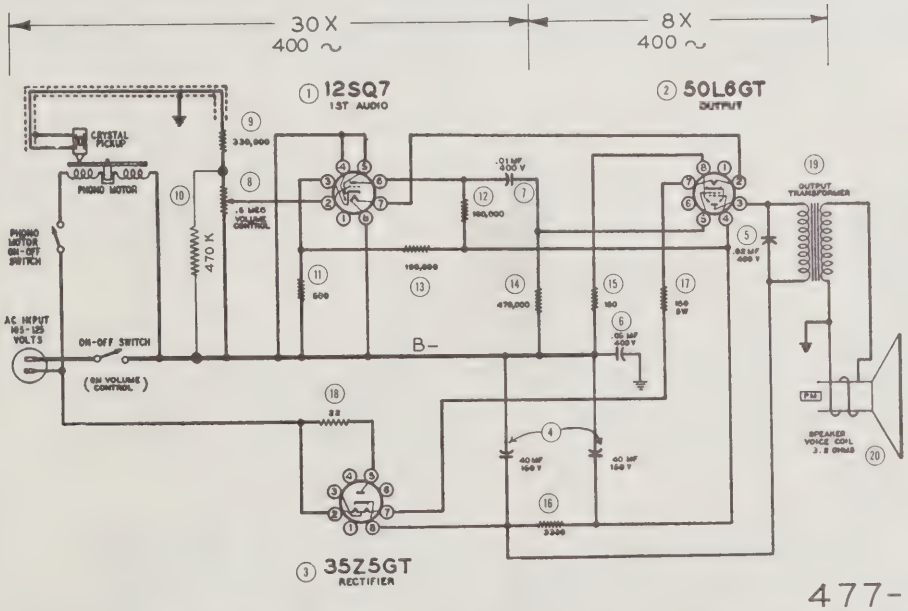
1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

AIRLINE
MODEL 74 BR-916 B

AIRLINE
MODEL 74 BR-916 B

AIRLINE MODEL 74BR-916B

TRADE NAME	Airline, Model 74BR-916B
MANUFACTURER	Montgomery Ward, 619 Chicago Ave., Chicago, Ill.
TYPE SET	AC Operated Portable Record Player with Three Tube Amplifier & Speaker
TUBES (THREE)	Types, 12SQ7GT/G AF Amp., 50L6GT Power Output, 35Z5GT Rectifier.
POWER SUPPLY	105-125 Volts AC RATING .230 Amp. @ 117 Volts AC



477-5

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SQ7GT/G	0V.	-.16V.DC	.9V.DC	0V.	0V.	85V.DC	11V.AC	0V.
2	50L6GT	0V.	11V.AC	125V.DC	120V.DC	0V.	0V.	58V.AC	7.6V.DC
3	35Z5GT	0V.	117V.AC	109V.AC	0V.	113V.AC	135V.AC	84V.AC	135V.DC

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SQ7GT/G	INF.	210 K Ω	490 Ω	0 Ω	0 Ω	140 K Ω	10 Ω	0 Ω
2	50L6GT	INF.	10 Ω	55 K Ω	55 K Ω	485 K Ω	INF.	54 Ω	130 Ω
3	35Z5GT	INF.	230 Ω	240 Ω	INF.	250 Ω	55 K Ω	205 Ω	55 K Ω

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

1. DC Voltage measurements are at 20,000 ohms per volt. AC Voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

HOWARD W. SAMS & CO., INC. **Indianapolis Indiana**

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed." "Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1947 by Howard W. Sams & Co., Inc., Indianapolis, Indiana, U. S. A. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc."

PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA: AIRLINE PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	AF Amp.	12SQ7GT/G	12SQ7GT/G	8Q	
2	Power Output	50L6GT	50L6GT	7AC	
3	Rectifier	35Z5GT	35Z5GT	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: AIRLINE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
4A	40	150	BEA-8C-114151	AF88D	UP4415	FP214	DY-2x40-150	EL-25	Filter - Red
B	40	150							" - Blue
5	.02	400	BEC-8D-10774	484-02	DT4S2	TP423	S-4-02	TC-12	Output Plate Bypass
6	.05	400	BEC-8D-10813	484-05	DT4S5	TP426	S-4-05	TC-15	Line Isolation
7	.01	400	BEC-8D-10761	484-01	DT4S1	TP421	S-4-01	TC-11	Audio Coupling

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: AIRLINE PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
8A	500KΩ	1	BEA-10A-11377	MK401	D13-133	AM-60-Z	Volume Control
B	Shaft		Not Req.	Not Req.	E	KSS-3	Attach to 8A per instructions
C	Switch		Not Req.	M26	41	SW-A	" " " " "

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: AIRLINE PART No.	IRC PART No.	IDENTIFICATION CODES
9	330KΩ	½	BEC-9B1-28	BTS-330K	Or.-Or.-Yl. Series Phono
10	470KΩ	½	BEC-9B1-29	BTS-470K	Yl.-Vi.-Yl. Volume Control Shunt-See Note 1
11	560Ω	½	BEC-9B1-59	BTS-560	Grn.-Blue-Br. 1st AF Cathode
12	100KΩ	½	BEC-9B1-86	BTS-100K	Br.-Blk.-Yl. 1st AF Plate Load
13	100KΩ	½	BEC-9B1-25	BTS-100K	Br.-Blk.-Yl. Bleeder Network
14	470KΩ	½	BEC-9B1-29	BTS-470K	Yl.-Vi.-Yl. Output Grid
15	150Ω	½	BEC-9B1-8	BW-½-150	Br.-Grn.-Br. Output Cathode
16	3300Ω	½	BEC-9B1-16	BTS-3300	Or.-Or.-Red Filter
17	160Ω	5	A-9D-12577	AB-150	Line Dropping
18	22Ω	½	BEC-9B1-3	BW-½-22	Red-Red-Blk. Rectifier Ballast

Note 1-Not used in all models.

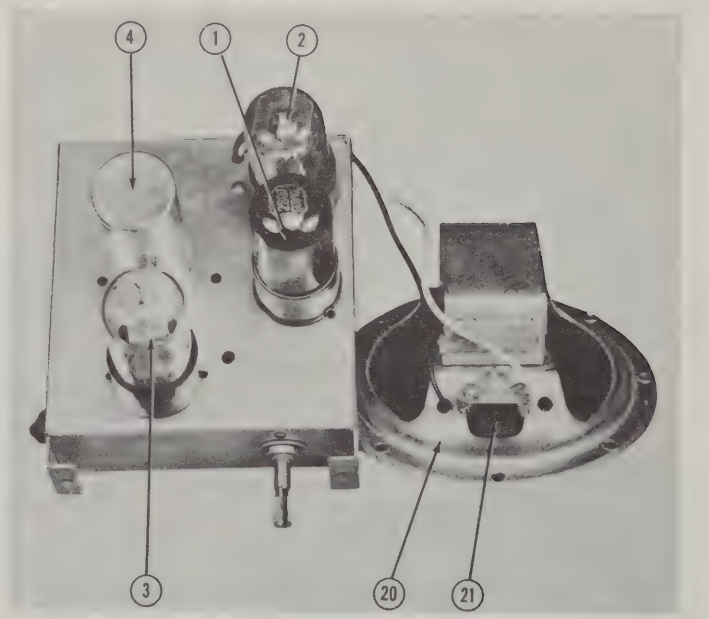
TRANSFORMER (OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: AIRLINE PART No.	STANCOR PART No.	THORDAR'N PART No.		INSTALLATION NOTES
19	2150Ω	3.45Ω	160Ω	.7Ω	BEB-12C-10074-3	A-3876	T22S45		

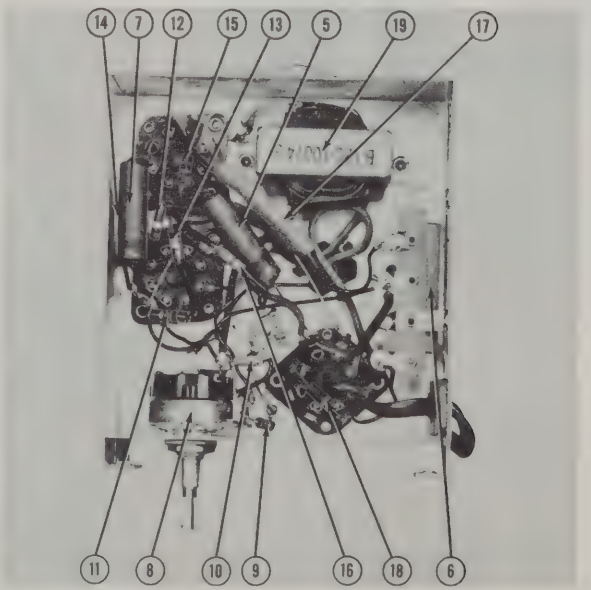
SPEAKER

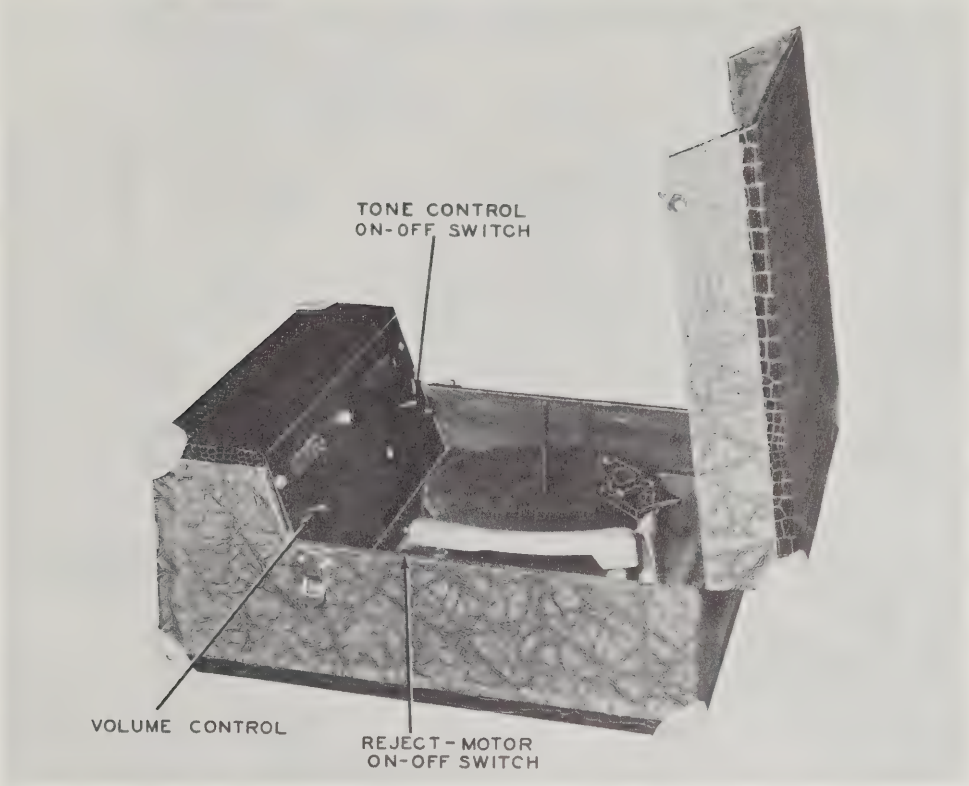
ITEM No.	RATINGS		REPLACEMENT DATA: AIRLINE PART No.	JENSEN PART No.		INSTALLATION NOTES
	FIELD	VC IMP.		ST-105		
20A	PM	3.45Ω	BEB-18A-10482	Mod. P5-X		
B			BEB-18A-11381			Alternate Speaker.
	CONE DIA.	VC DIA.				
21	4-3/4"	1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.			

CHASSIS—TOP VIEW



CHASSIS—BOTTOM VIEW





APEX MODEL 192A

TRADE NAME	Apex, Model 192A
MANUFACTURER	Apex Industries, 192 Lexington Ave., New York, N.Y.
TYPE SET	AC Operated Phonograph with 3 Tube Amplifier & Speaker.
TUBES (THREE)	Types, 6SN7GT AF Amp., 6V6GT/G Power Output, 6X5GT Rectifier.
POWER SUPPLY	110-120 Volts AC RATING .320 Amp. @ 117V AC

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SN7GT	OV.	52V.DC	2.2V.DC	OV.	55V.DC	2.2V.DC	6.4V.DC	OV.
2	6V6GT/G	OV.	OV.	268V.DC	280V.DC	OV.	OV.	6.4V.AC	15V.DC
3	6X5GT	OV.	6.4V.AC	240V.AC	OV.	240V.AC	OV.	OV.	300V.DC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SN7	280K Ω	480K Ω	1000 Ω	280K Ω	480K Ω	1000 Ω	.1 Ω	0 Ω
2	6V6GT/G	0 Ω	0 Ω	150K Ω	150K Ω	250K Ω	220K Ω	.1 Ω	250 Ω
3	6X5GT	0 Ω	.1 Ω	230 Ω	0 Ω	230 Ω	INF	0 Ω	150K Ω

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

HOWARD W. SAMS & CO., INC. Indianapolis Indiana

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed." "Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1947 by Howard W. Sams & Co., Inc., Indianapolis, Indiana, U. S. A. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc."

PARTS LIST AND DESCRIPTIONS

APEX MODEL 192A

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		APEX PART No.	STANDARD REPLACEMENT		
1	AF Amp.	6SN7GT	6SN7GT	8BD	
2	Power Output	6V6GT/G	6V6GT/G	7AC	
3	Rectifier	6X5GT	6X5GT	6S	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT	APEX PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	
4A	20	400		AF2222J	UP7DJ54	FP339	DY-402	EL-322	■ Filter
B	10	400							▲ "
C	10	25							Cath. Bypass
5	.006	600		684-006	DT6D6	TP409	S-6-006	TC-26	Output Plate Bypass
6	.005	600		684-005	DT6D5	TP408	S-6-005	TC-25	Tone Compensation
7	.01	600		684-01	DT6S1	TP410	S-6-01	TC-11	Audio Coupling
8	.01	600		684-01	DT6S1	TP410	S-6-01	TC-11	" "

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA				INSTALLATION NOTES
	RESISTANCE	WATTS	APEX PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
9A	250KΩ	1		UM149	D11-130	M-55-S	Volume Control
B	Shaft			Not Req.	A	Not Req.	Attach to 9A per instructions
10A	100KΩ	1		MR39	D13-128	M-51-Z	Tone Control
B	Shaft			Not Req.	A	Not Req.	Attach to 10A per instructions
C	Switch			M26	41	SW-A	" " " " "

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	APEX PART No.	IRC PART No.	
11	250KΩ	½		BTS-270K	Red-Grn.-Yl. AF Grid
12	2000Ω	½		BTS-2200	Red-Blk.-Red AF Cathode
13	2200Ω	½		BTS-2200	Red-Red-Red AF Cathode
14	250KΩ	½		BTS-270K	Red-Grn.-Yl. AF Plate Load
15	250KΩ	½		BTS-270K	Red-Grn.-Yl. Phase Inverter Plate Load
16	330Ω	1		BW-1-330	Or.-Or.-Br. Output Cathode
17	820KΩ	½		BTS-270K	Red-Grn.-Yl. Feedback

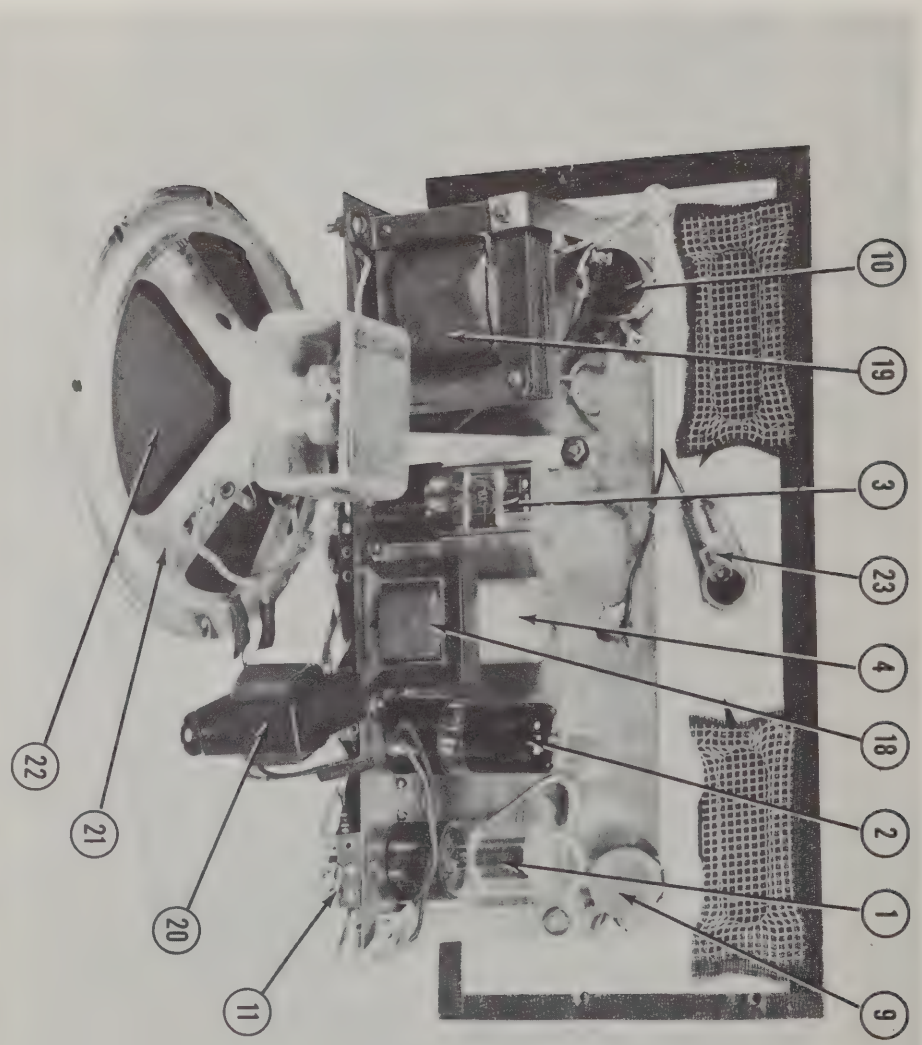
FILTER CHOKE

ITEM NO.	RATINGS			REPLACEMENT DATA			INSTALLATION NOTES
	TOTAL DIRECT CURRENT	D. C. RESISTANCE	INDUCTANCE (0 CURRENT 1000∿)	APEX PART NO.	STANCOR PART NO.	THORDARSON PART NO.	
18	.043A	320Ω	5 Henries		C-1706*	T20C53†	*Use 2 in mounting holes provided. †Drill new mounting holes.

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA			INSTALLATION NOTES
	PRI.	SEC. 1	SEC. 2	SEC. 3	APEX PART No.	STANCOR PART No.	THORDARSON PART No.	
19	117V AC @ .32A	480V CT @ .043A	6.4V AC @ 1.8A			P-6297	T22R00	Mount in cutout provided.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		APEX PART No.	STANCOR PART No.	THORDAR'N PART No.		
	PRI.	SEC.	PRI.	SEC.					
20	4700Ω	3.2Ω	275Ω	.05Ω		A-3877†	T22S46†		†Drill new mounting holes.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			APEX PART No.	JENSEN PART No.		
21	FIELD PM	VC IMP. 3.2Ω		ST-110 Mod. P6-V		
22	CONE DIA. 5-7/8"	VC DIA. 5/8"	NOT READILY	REPLACEABLE-USE COMPLETE SPEAKER UNIT		

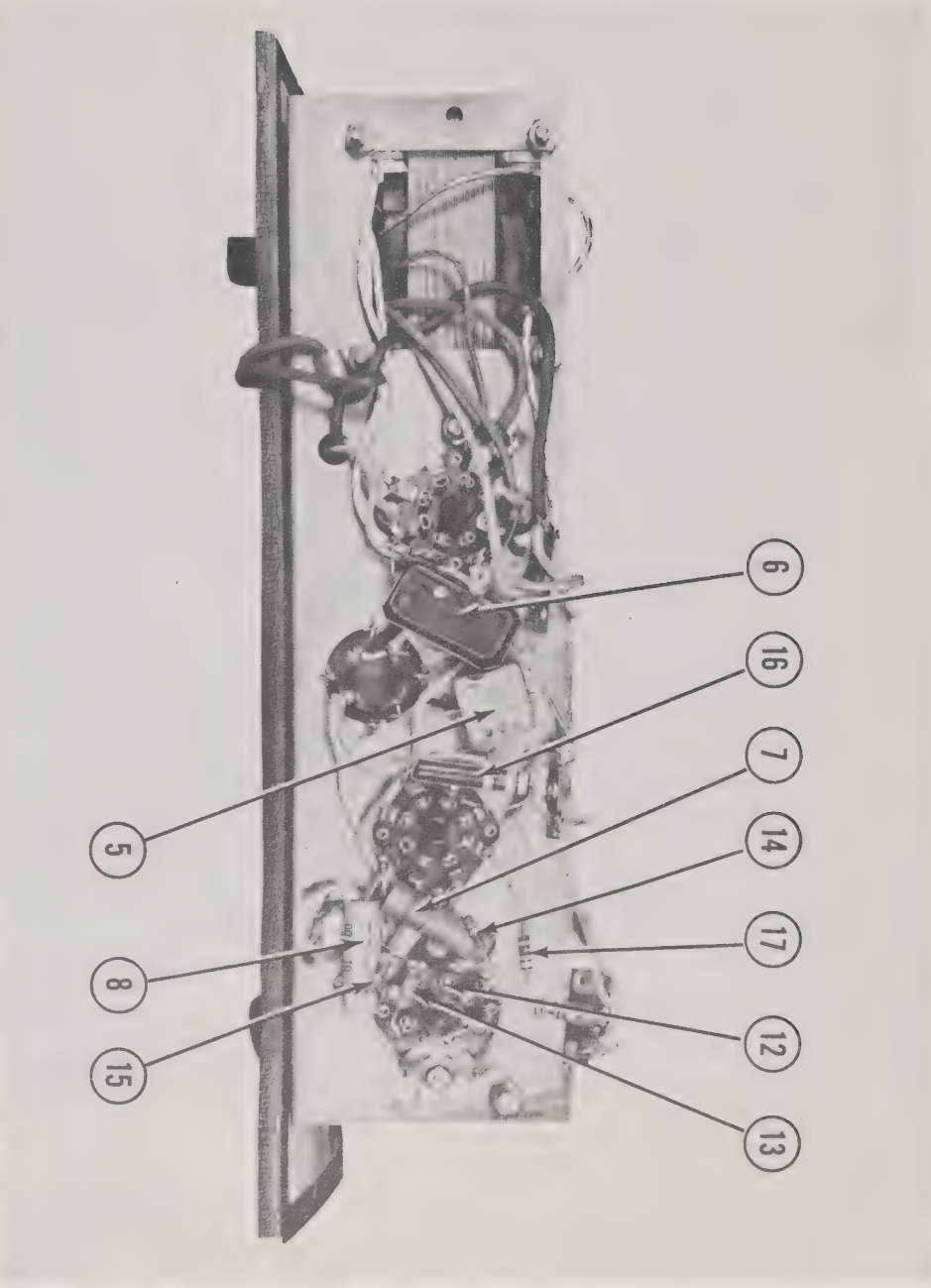
DIAL LIGHT

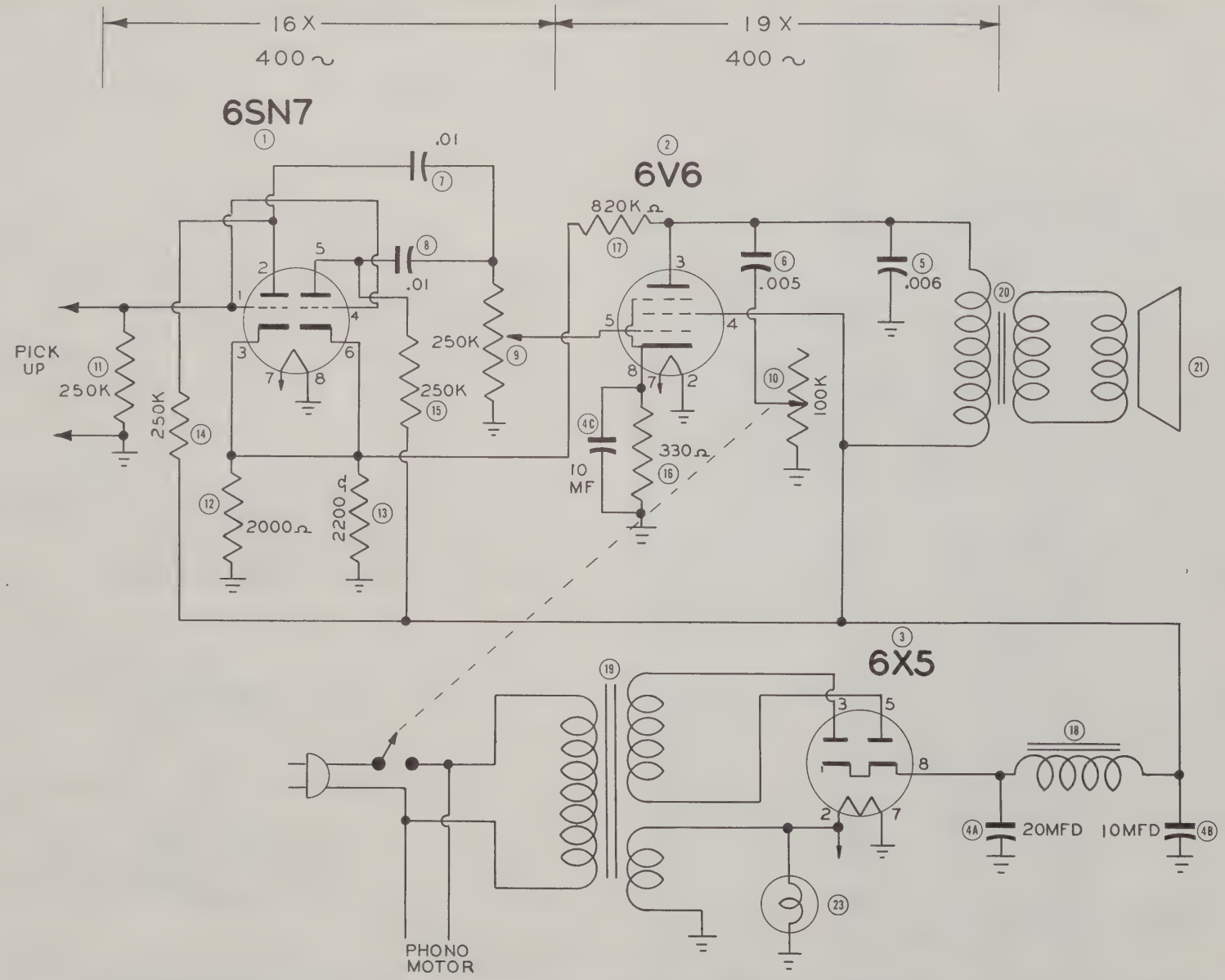
ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					APEX PART No.		
23	Screw	6-8	0.25	Blue			Type 46

DISASSEMBLY INSTRUCTIONS

1. Remove five screws holding changer mounting panel. Lift up changer.
2. Unsolder phono-motor leads.
3. Unsolder phono-pickup leads.
4. Remove four screws holding chassis mounting panel.
5. Remove two hex nuts holding output trans. and four hex nuts holding speaker. Remove output trans. and speaker.

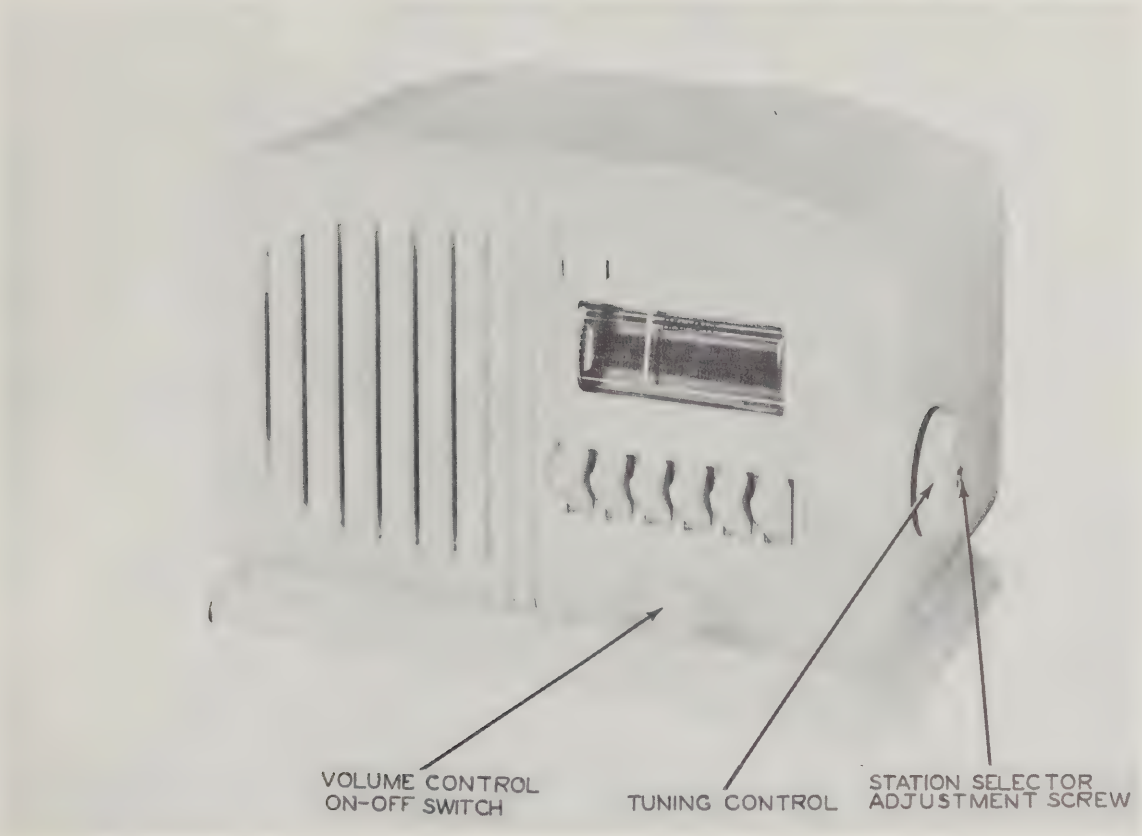
CHASSIS—BOTTOM VIEW





THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

BELMONT
MODEL A-6D110



BELMONT
MODEL A-6D110

BELMONT MODEL A-6D110

TRADE NAME Belmont, Model A-6D110
MANUFACTURER Belmont Radio Corp., 5921 Dickens Ave., Chicago, Ill.
TYPE SET AC-DC Superhet. - Self Contained Loop Antenna - (6) Pushbutton Tuning
TUBES (SIX) Types, 12SK7GT RF Amp., 12SA7GT Converter, 12SK7GT IF Amp., 12SQ7GT Det.-AVC-AF, 35L6GT Power Output, 35Z5GT Rectifier.

POWER SUPPLY 105-125 Volts AC-DC RATING .235 Amp. @ 117 Volts AC
TUNING RANGE—BROADCAST 535-1650KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control at maximum volume and output from signal generator no higher than is necessary to obtain output reading. Use insulated alignment screwdriver for adjusting. Have receiver loop in same relative position as it will be when chassis is in cabinet.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD.	High side to pin #8 (signal grid) of 12SA7. Low side to B-.	455KC	High freq.end of dial. (min. cap.).	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. Use isolation transformer if available. If not, isolating capacitor must be connected between generator ground lead and receiver B-. Also decrease dummy ant. to .001 MFD. to prevent excessive hum modulation.
.1 MFD.	"	1650KC	"	"	A5	"
	Loop	1400KC	Tune in 1400 KC signal.	"	A6	Adjust for maximum output. Connect signal generator to loop of few turns of wire and radiate signal into receiver.

HOWARD W. SAMS & CO., INC. **Indianapolis Indiana**

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed." "Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1947 by Howard W. Sams & Co., Inc., Indianapolis, Indiana, U. S. A. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc."

PARTS LIST AND DESCRIPTIONS

BELMONT MODEL A-6D11C

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: BELMONT PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	RF Amp.	12SK7GT	12SK7GT	8N	
2	Converter	12SA7GT	12SA7GT	8AD	
3	IF Amp.	12SK7GT	12SK7GT	8N	
4	Det.-AVC-AF	12SQ7GT	12SQ7GT	8Q	
5	Power Output	35L6GT	35L6GT	7AC	
6	Rectifier	35Z5GT	35Z5GT	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: BELMONT PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
7A	40	150	11994	AF844D	UP4CJ1	FP354	DY-3x20-150	EL-224	■ Filter
B	20	150							▲ "
C	20	150							● "
8	.1	400	1001	484-.1	DT4P1	TP428	S-4-1	TC-1	Line Filter
9	.02	400	10026	484-.02	DT4S2	TP423	S-4-02	TC-12	35L6 Plate Bypass
10	.004	600	100106	684-.004	DT6D4	TP407	S-6-004	TC-24	Audio Coupling
11	.2	400	100110	484-.2	DT4P2	TP429	S-4-2	TC-2	Line Isolating
12	.002	600	10025	634-.002	DT6D2	TP405	S-6-002	TC-22	Audio Coupling
13	.05	200	1009	484-.05	DT4S5	TP426	S-4-05	TC-15	AVC Filter
14	.25	200	1006	484-.25	DT4P25	TP430	S-4-25	TC-2	RF Bypass Pwr. Supp.
15	.02	400	10026	484-.02	DT4S2	TP423	S-4-02	TC-12	AVC Filter
16	.01	400	10011	484-.01	DT4S1	TP421	S-4-01	TC-11	Ant. Series Tuned
17	.100	500	1295	1468-.0001	5W5T1	MC235	MO.5-31	1FM-31	Audio Plate Bypass
18	50	500	12939	1468-.00005	5W5Q5	MC225	MO.5-45	1FM-45	RF Bypass Vol. Cont.
19	100	500	1295	1468-.0001	5W5T1	MC235	MO.5-31	1FM-31	RF Bypass Diode
20	100	500	1295	1468-.0001	5W5T1	MC235	MO.5-31	1FM-31	Osc. Grid Cond.
21	100	500	1295	1468-.0001	5W5T1	MC235	MO.5-31	1FM-31	RF Coupling
22	125	500	129132	1468-.00015	5W5T15	MC236	MO.5-315	1FM-315	Ant. Coupling

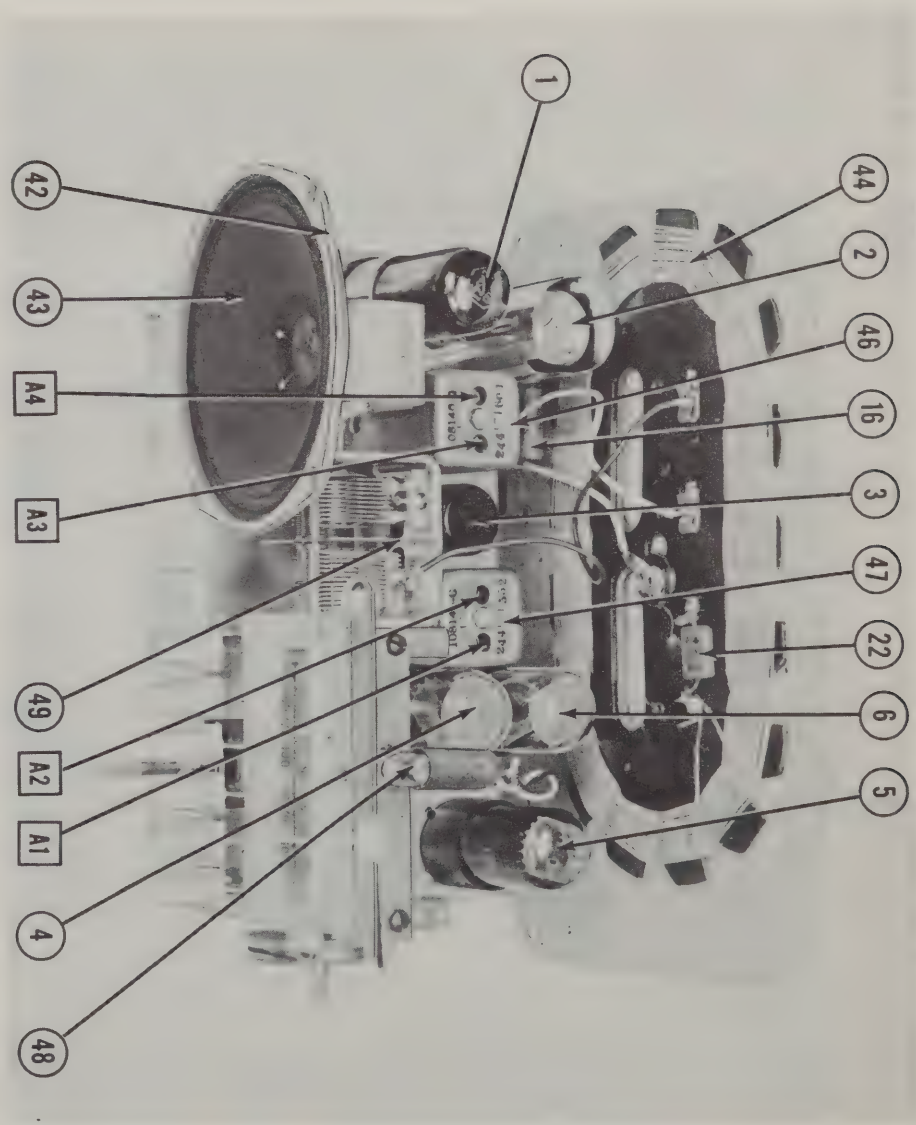
CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: BELMONT PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
23A	1 Meg.	1	1C1211	MK402	D13-137	AM-63-Z	Volume Control
B	Shaft		Not Req.	Not Req.	E	KSS-3	Attach to 23A per instructions
C	Switch		" "	M26	41	SW-A	" " " " "

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: BELMONT PART No.	IRC PART No.	IDENTIFICATION CODES
24	150KΩ	½	A-9B1-26	BTS-150K	Br.-Grn.-Yl. AVC Network
25	100Ω	½	A-9B1-50	BW-½-100	Br.-Blk.-Br. RF Cathode
26	150KΩ	½	A-9B1-26	BTS-150K	Br.-Grn.-Yl. Line Isolating
27	5000Ω	½	A-9B1-70	BTS-4700	Grn.-Blk.-Red RF Plate Load
28	100KΩ	½	A-9B1-25	BTS-100K	Br.-Blk.-Yl. Converter Grid
29	47KΩ	½	A-9B1-82	BTS-47K	Yl.-Vi.-Or. Osc. Grid
30	22Ω	½	A-9B1-42	BW-½-22	Red-Red-Blk. Rectifier Ballast
31	200Ω	1	A-9B2-54	BW-1-220	Red-Blk.-Br. Filter
32	1200Ω	1	A-9B2-63	BW-1-1200	Br.-Red-Red Filter
33	150Ω	½	A-9B1-52	BW-½-150	Br.-Grn.-Br. IF Cathode
34	3.3 Meg.	½	A-9B1-34	BTS-3.3 Meg.	Or.-Or.-Grn. AVC Network
35	47KΩ	½	A-9B1-23	BTS-47K	Yl.-Vi.-Or. Diode Load
36	4.7 Meg.	½	A-9B1-35	BTS-4.7 Meg.	Yl.-Vi.-Grn. 1st AF Grid
37	220KΩ	½	A-9B1-27	BTS-220K	Red-Red-Yl. 1st AF Plate Load
38	150Ω	½	A-9B1-52	BW-½-150	Br.-Grn.-Br. Output Cathode
39	470KΩ	½	A-9B1-29	BTS-470K	Yl.-Vi.-Yl. Output Grid
40	33Ω	1		BW-1-33	Or.-Or.-Blk. Line Dropping

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		BELMONT PART No.	STANCOR PART No.	THORDAR'N PART No.		
	PRI.	SEC.	PRI.	SEC.					
41	3500Ω	3.2Ω	310Ω	.66Ω	10595	A-3876	T22S62#		#Drill one new mounting hole.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			BELMONT PART No.	JENSEN PART No.		
	FIELD	VC IMP.		ST-113†		
42	PM	3.2Ω	114191	Mod. P4-X		†Improvise new mounting bracket.
	CONE DIA.	VC DIA.				
43	4½"	½"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.			

R F COILS

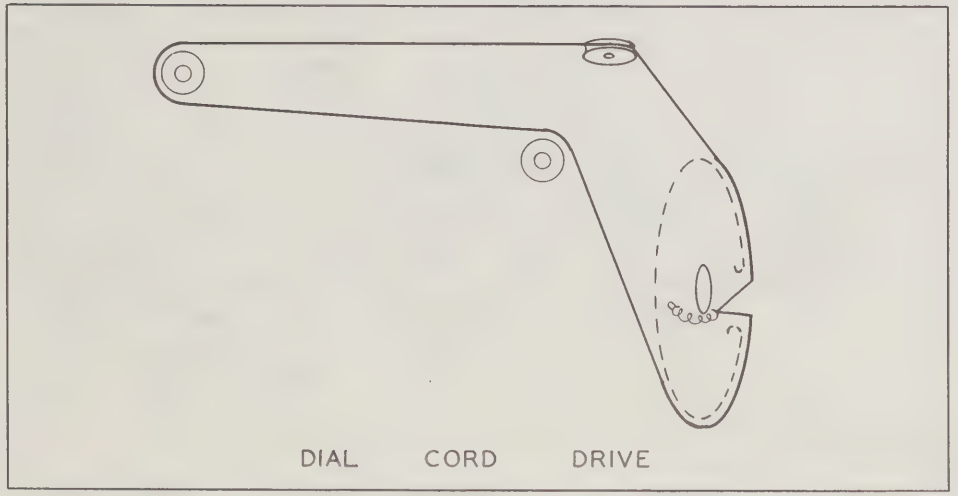
ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	BELMONT PART No.	MEISSNER PART No.	
44	Loop Ant. & Loading Coil	.1Ω 30Ω	.75Ω	B-13E-10123		
45	Osc. Coil	1Ω	2.8Ω	A-13D-10215		
46	Input IF	30.5Ω	31Ω	108140G	16-6658	
47	Output IF	23.5Ω	25Ω	108145C	16-6660	

DIAL LIGHT

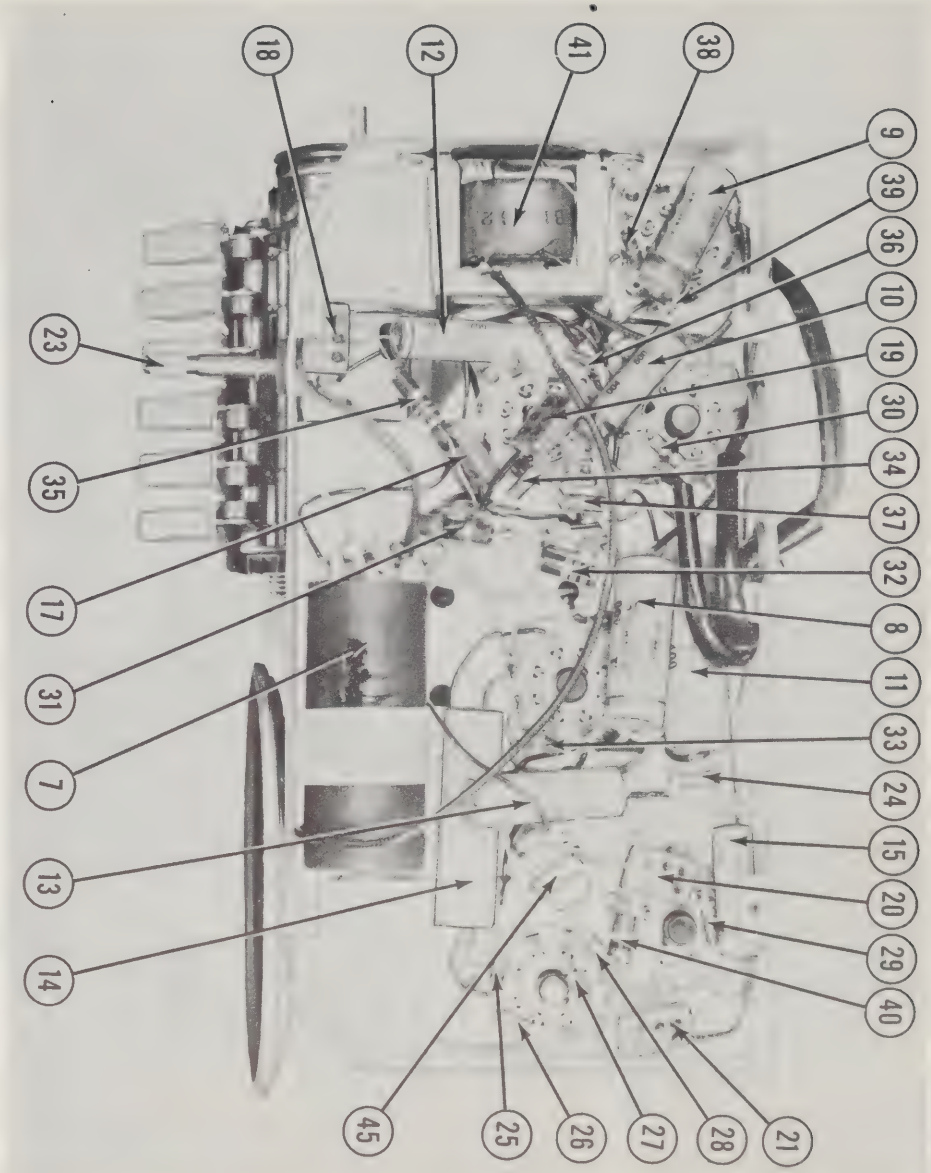
ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					BELMONT PART No.		
48	Bayonet	6-8	0.15	Brown	107249		#47

MISCELLANEOUS

ITEM No.	PART NAME	BELMONT PART No.	NOTES
	Tuning Cap.	B-8A-10212	2 Gang Variable

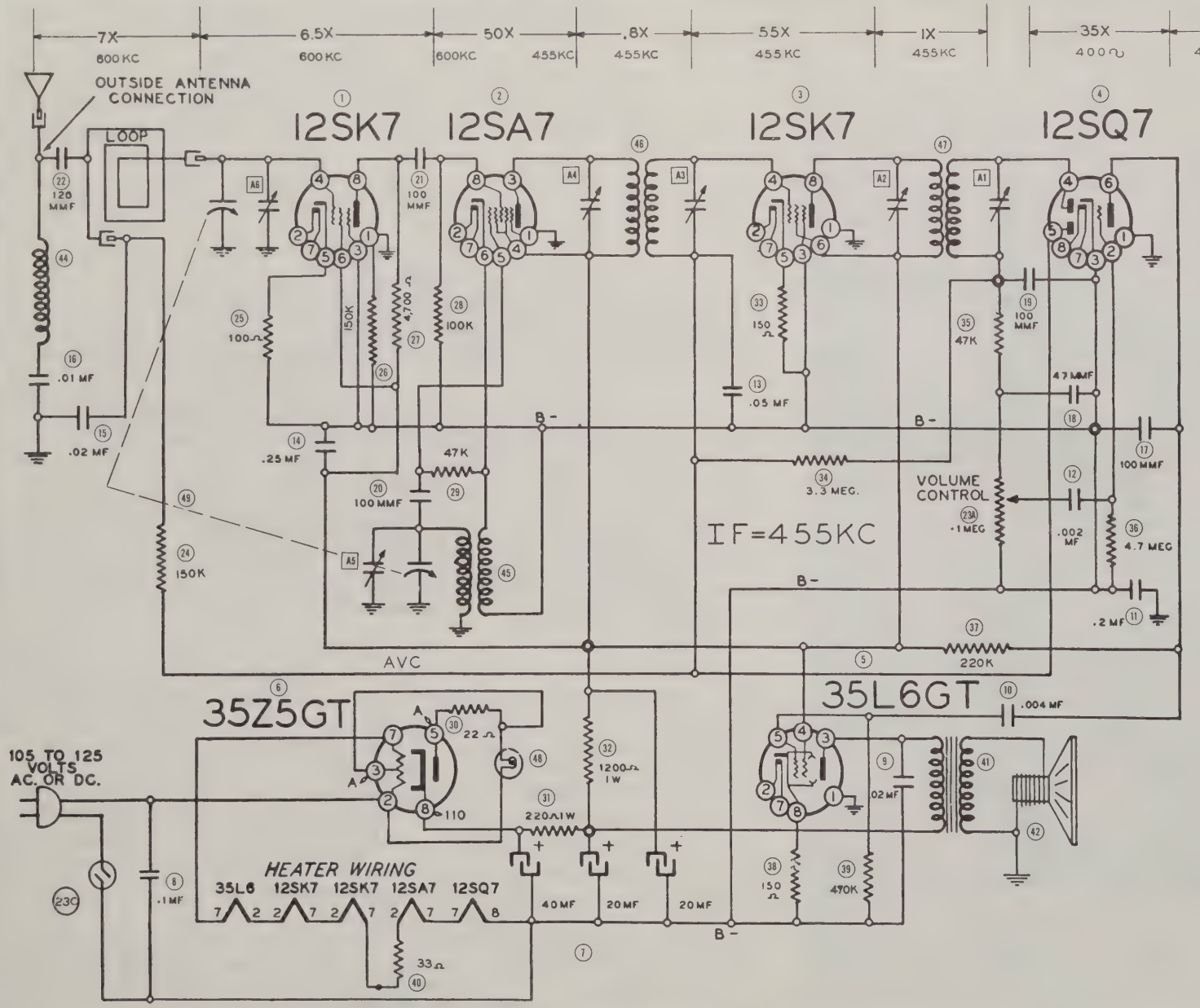


CHASSIS—BOTTOM VIEW



BELMONT
MODEL A-6D110

BELMONT
MODEL A-6D110



Pin No	12SK7 Volt	12SK7 Res	12SA7 Volt	12SA7 Res
1	0V.	140 KΩ	0V.	140 KΩ
2	41V. AC	75 Ω	22V. AC	27 Ω
3	0V.	0 Ω	75V. DC	90 KΩ
4	-.14V. DC	5 MEG.	75V. DC	90 KΩ
5	.9V. DC	105 KΩ	.54V. DC	47 KΩ
6	75V. DC	90 KΩ	0V.	1 Ω
7	28V. AC	62 Ω	11V. AC	14 Ω
8	47V. DC	95 KΩ	0V.	115 KΩ

Pin No	12SK7 Volt	12SK7 Res	12SQ7 Volt	12SQ7 Res
1	0V.	140 KΩ	0V.	140 KΩ
2	53V. AC	88 Ω	75V. DC	4.7 MEG.
3	0V.	0 Ω	0V.	0 Ω
4	-.5V. DC	4.7 KΩ	75V. DC	1.1 MEG.
5	1.25V. DC	150 Ω	75V. DC	4.7 MEG
6	75V. DC	90 KΩ	56V. DC	300 KΩ
7	41V. AC	75 Ω	11V. AC	14 Ω
8	75V. DC	90 KΩ	0V.	0 Ω

Pin No.	35L6 GT Volt.	35L6 GT Res	35Z5 GT Volt	35Z5 GT Res.
1	0V.	140 KΩ	0V.	INF.
2	53V. AC	88 Ω	117V. AC	160 Ω
3	75V. DC	90 KΩ	113V. AC	155 KΩ
4	75V. DC	90 KΩ	0V.	0 Ω
5	0V.	470 KΩ	112V. AC	175 Ω
6	0V.	0 Ω	0V.	0 Ω
7	85V. AC	118 Ω	85V. AC	118 Ω
8	4.9V. DC	180 Ω	118V. DC	90 KΩ

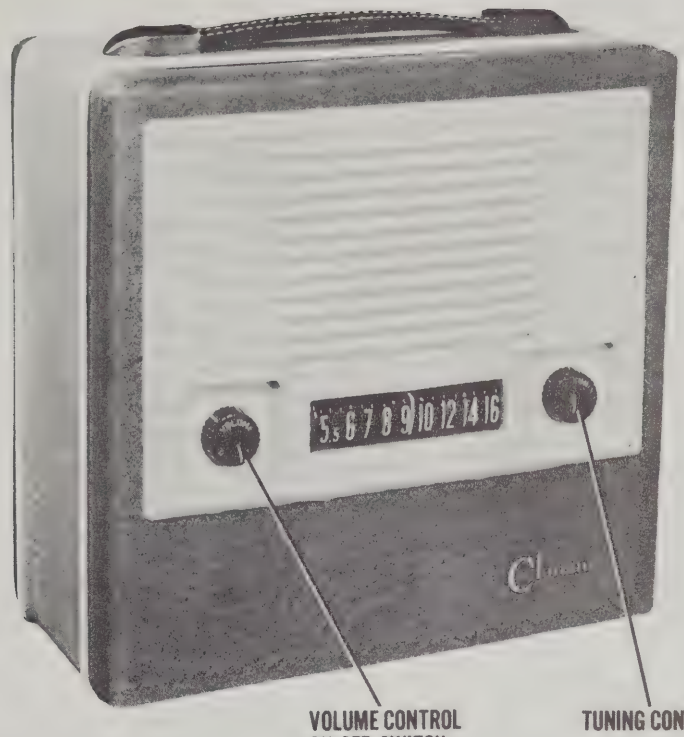
RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

477-7

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.



CLARION
MODEL 11011

CLARION
MODEL 11011

CLARION MODEL 11011

TRADE NAME	Clarion, Model 11011
MANUFACTURER	Warwick Mfg. Corp., 4640 W. Harrison St., Chicago, Ill.
TYPE SET	Three Power Portable Superheterodyne - Self Contained Loop Antenna
TUBES (FOUR)	Types, 1R5 Converter, 1U4 IF Amp., 1S5 Det.-AVC-AF, 3Q4 Power Output
POWER SUPPLY	110-120 Volts AC-DC or 7½ Volt "A" Battery & 90 Volt "B" Battery
POWER SUPPLY	.170 Amp. @ 117 Volts AC or 55MA @ 7.8 Volts DC & 14MA @ 94 Volts DC
TUNING RANGE—BROADCAST	535-1600KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use battery power whenever available. When AC power must be used use an isolation transformer if available. If not, connect a capacitor in series with low side of signal generator and B-. Connect loop to receiver with extended leads. Volume control at maximum position. Output of signal generator no higher than necessary to obtain output reading. Use an insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD.	High side to rear stator of tuning cap. Low side to B-.	455KC	Tuning cap. fully open.	Across voice coil.	A1,A2, A3,A4.	Adjust for maximum output. If AC power is used without an isolation transformer, reduce dummy antenna to .001 MFD. to reduce hum modulation.
250MMFD	High side to ext. ant. lead. Low side to ext. gnd. lead.	1600KC	"	"	A5	Adjust for maximum output.
250MMFD	"	1400KC	Tune for maximum output.	"	A6	" " " "
250MMFD	"	600KC	"	"	A7	Adjust for maximum output. Repeat last three steps.

HOWARD W. SAMS & CO., INC. **Indianapolis Indiana**

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed." "Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1947 by Howard W. Sams & Co., Inc., Indianapolis, Indiana, U. S. A. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc."

PARTS LIST AND DESCRIPTIONS

CLARION
MODEL 11011

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		CLARION PART No.	STANDARD REPLACEMENT		
1	Converter	1R5	1R5	7AT	
2	IF Amp.	1U4	1U4	6AR	
3	Det.-AVC-AF	1S5	1S5	6AU	
4	Power Output	3Q4	3Q4	7BA	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT	CLARION PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	
5A	40	150	A18-281	AF866D4A	UP7DJ19†	FP363	DSB-403020-150	EL-224	● Filter
B	20	150							■ "
C	20	150							▲ "
D	100	25		PRS25-100	BRH251	TC2501	M-100-25	UHC-102	Fil. Bypass
6	.05	400	A16-158	484-05	DT4S5	TP426	S-4-05	TC-15	Line Filter
7	.1	200	A16-157	484-.1	DT4P1	TP428	S-4-1	TC-1	Pwr. Supp. Bypass
8	.005	150	A16-166	484-005	DT6D5	TP408	S-6-005	TC-25	Output Plate Bypass
9	.005	150	A16-166	484-005	DT6D5	TP408	S-6-005	TC-25	Audio Coupling
10	.005	150	A16-166	484-005	DT6D5	TP408	S-6-005	TC-25	" "
11	.01	200	A16-165	484-01	DT4S1	TP421	S-4-1	TC-1	Audio Screen Bypass
12	.002	600	A16-155	684-002	DT6D2	TP405	S-6-002	TC-22	IF Grid Filter
13	.01	200	A16-165	484-01	DT4S1	TP421	S-4-01	TC-11	Conv. Screen Decoup.
14	.1	400	A16-160	484-.1	DT4P1	TP428	S-4-1	TC-1	Filament Bypass
15	.002	600	A16-155	684-002	DT6D2	TP405	S-6-002	TC-22	AVC Filter
16	.1	400	A16-160	484-.1	DT4P1	TP428	S-4-1	TC-1	Line Isolation
17	50	500	A15-175	1468-00005	5W5Q5	MC225	MO.5-45	1FM-45	Audio Plate Bypass
18	100	500	A15-188	1468-0001	5W5T1	MC235	MO.5-31	1FM-31	Diode Filter
19	100	500	A15-188	1468-0001	5W5T1	MC235	MO.5-31	1FM-31	" "
20	50	500	A15-175	1468-00005	5W5Q5	MC225	MO.5-45	1FM-45	Osc. Grid Capacitor
21	100	500	A15-188	1468-0001	5W5T1	MC235	MO.5-31	1FM-31	RF Coupling

†Do not use bypass section.

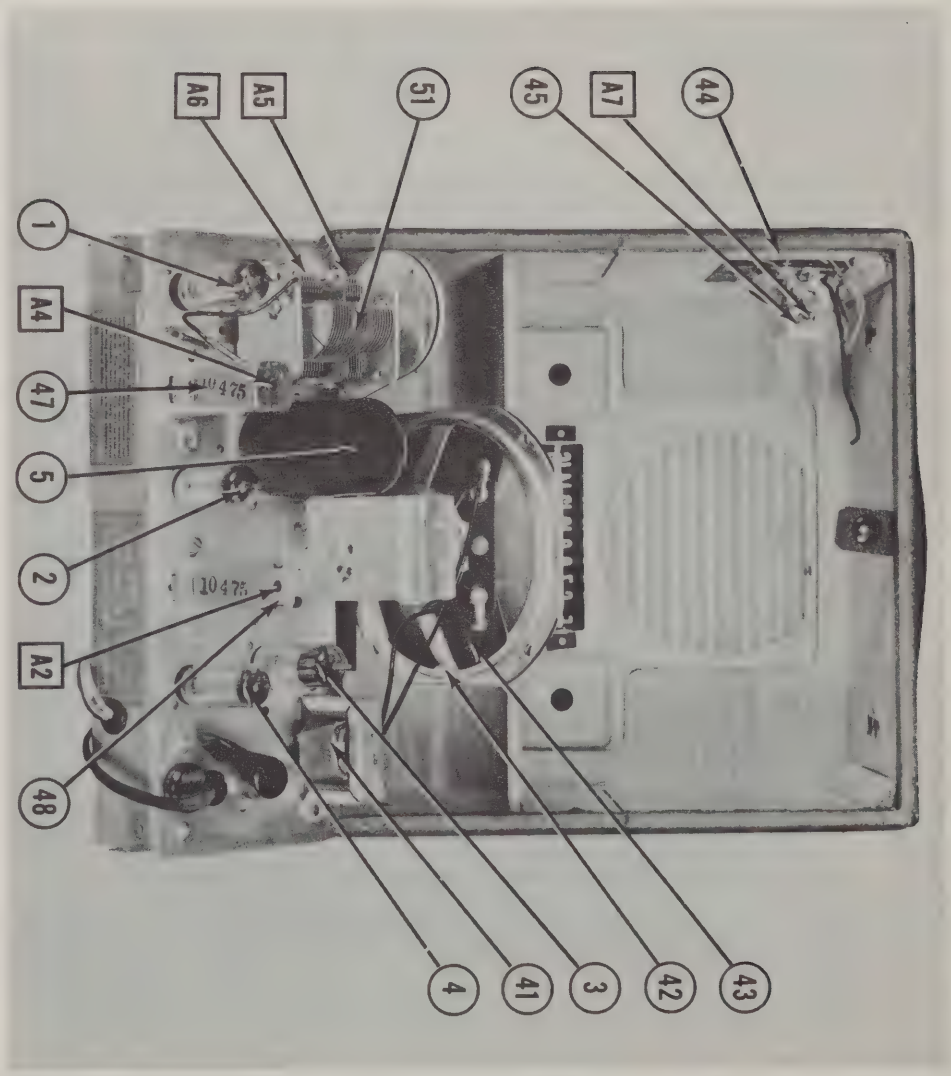
CONTROLS

ITEM No.	RATING		REPLACEMENT DATA				INSTALLATION NOTES
	RESISTANCE	WATTS	CLARION PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
22A	1 Meg.	1	A24-170	MK402	D13-137	AM-63-Z	Volume Control
B	Shaft		Not Req.	Not Req.	E	KSS-3	Attach to 22A per instructions
C	Switch		" "	M27	42	SW-A2	" " " " "

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	CLARION PART No.	IRC PART No.	
23	2.2 Meg.	½	A60-684	BTS-2.2 Meg.	Red-Red-Grn. Converter Grid
24	100KΩ	½	A60-671	BTS-100K	Br.-Blk.-Yl. Oscillator Grid
25	820Ω	½	A60-709	BTS-820	Gray-Red-Br. Filament String
26	220KΩ	½	A60-667	BTS-220K	Red-Red-Yl. Line Isolation
27	3900Ω	½	A60-710	BTS-3900	Or.-White-Red Decoupling
28	10 Meg.	½	A60-663	BTS-10 Meg.	Br.-Blk.-Blue IF Grid
29	2.2 Meg.	½	A60-684	BTS-2.2 Meg.	Red-Red-Grn. AVC Network
30	50KΩ	½	A60-685	BTS-47K	Grn.-Blk.-Or. Diode RF Filter
31	10 Meg.	½	A60-663	BTS-10 Meg.	Br.-Blk.-Blue AF Grid
32	1000Ω	½	A60-675	BTS-1000	Br.-Blk.-Red Filament String
33	2.2 Meg.	½	A60-684	BTS-2.2 Meg.	Red-Red-Grn. AF Screen Dropping
34	470KΩ	½	A60-662	BTS-470K	Yl.-Vi.-Yl. AF Plate Load
35	2.2 Meg.	½	A60-684	BTS-2.2 Meg.	Red-Red-Grn. Output Grid
36	470Ω	½	A60-707	BTS-470	Yl.-Vi.-Br. Filament String
37	680Ω	½	A60-708	BTS-680	Blue-Gray-Br. Filament String
38	2200Ω	½	A60-714	BTS-2200	Red-Red-Red Filter
39A	910Ω	10	A60-713		Filament String
B	910Ω				" "
40	75Ω	3	A60-712	AB-75	Vi.-Grn.-Blk. Surge Limiter

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

ITEM No.	RATING IMPEDANCE PRI.	RATING IMPEDANCE SEC.	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA CLARION PART No.	STANCOR PART No.	THORDAR'N PART No.		INSTALLATION NOTES
41	7600Ω	3.4Ω	750Ω	.7Ω	A80-228	A-3878	T22847		

SPEAKER

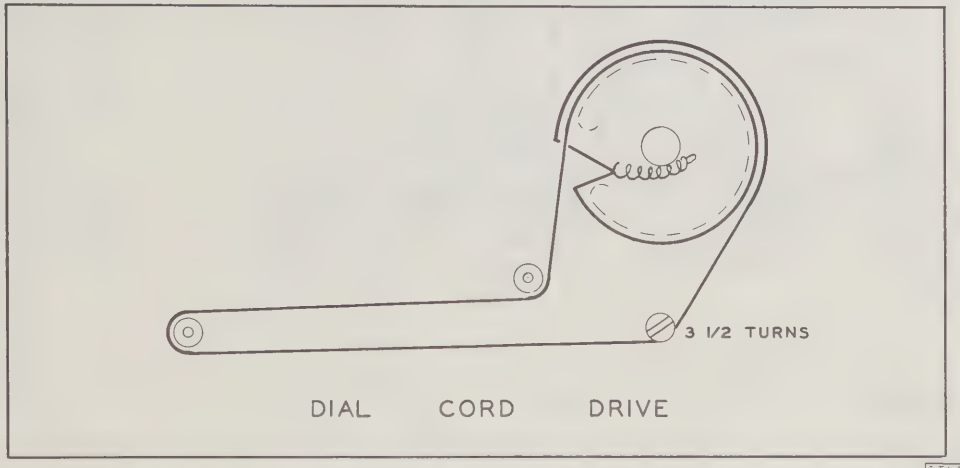
ITEM No.	RATINGS		REPLACEMENT DATA CLARION PART No.	JENSEN PART No.		INSTALLATION NOTES
42	FIELD PM	VC IMP. 3.4Ω	B79-350	ST-107* Mod. P5-V		*Trim flange to clear cabinet and dial.
43	CONE DIA. 4½"	VC DIA. 1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.			

R F COILS

ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA CLARION PART No.	MEISSNER PART No.
44	Loop Ant.	.1Ω	.7Ω		
45	Loop Loading Coil		.3Ω	10-470	
46	Osc. Coil	2Ω	7Ω	B10-460	14-1040
47	Input IF	21Ω	21Ω	C10-462	16-6658
48	Output IF	21Ω	21Ω	C10-463	16-6660

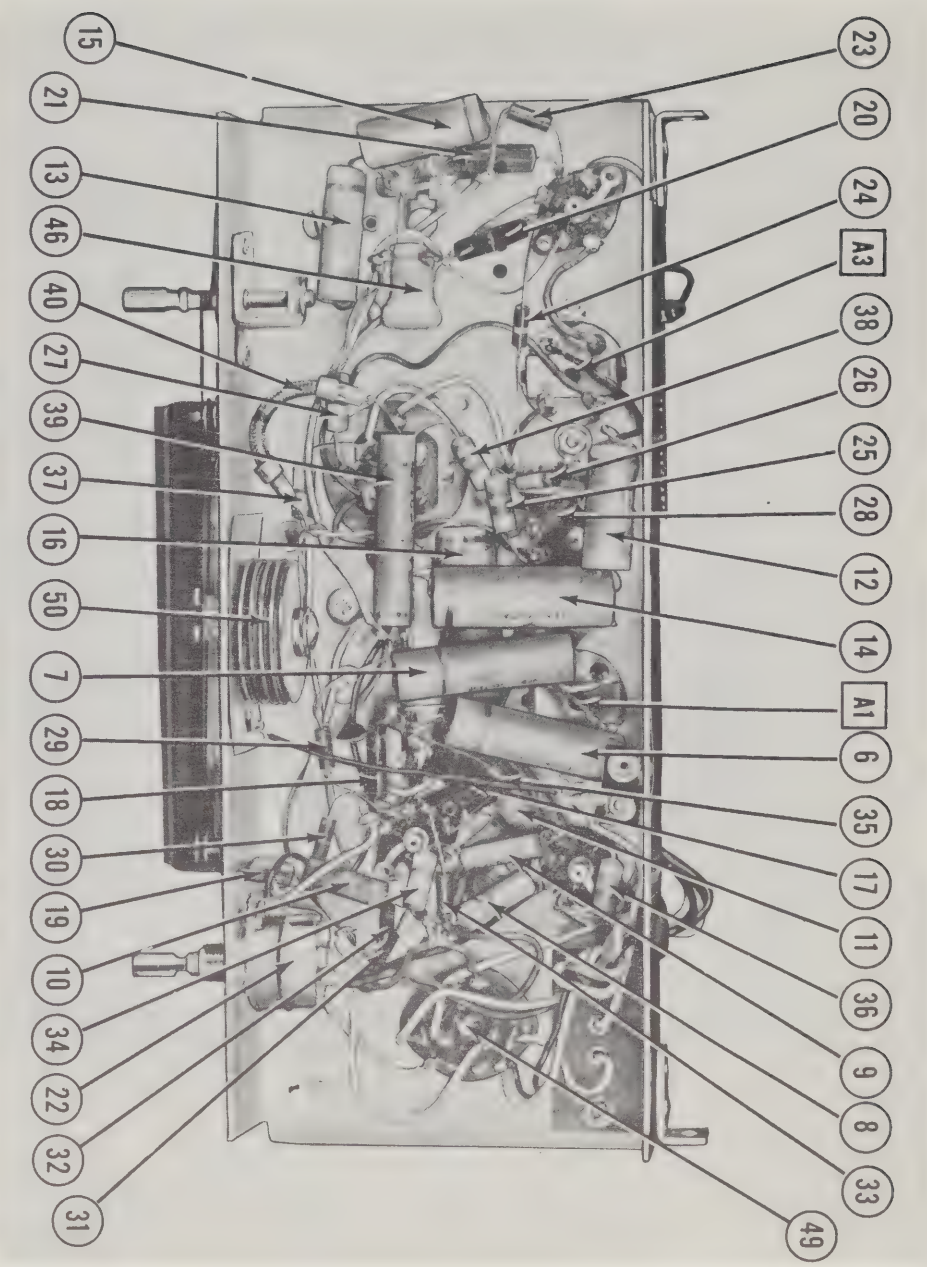
MISCELLANEOUS

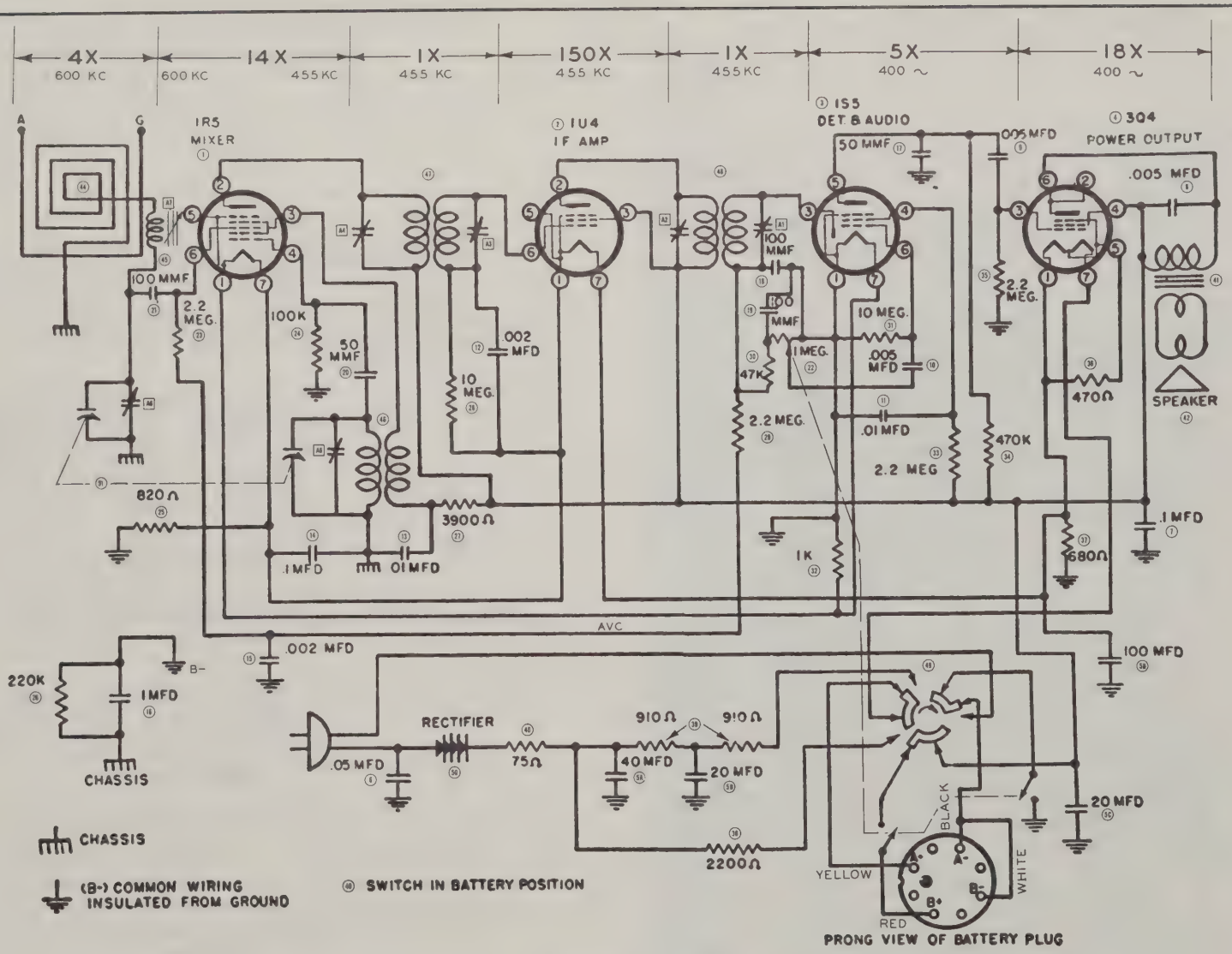
ITEM No.	PART NAME	CLARION PART No.	NOTES
49	Switch	B69-173	AC/DC/Batt.
50	Rectifier	A83-391	Selenium
51	2 Gang Var. Cap.	B19-188	18-469MMF, 42-224 MMF
	Dial Pointer	A58-63	
	Dial Scale	B67-496	
	A-B Battery Pack		Eveready Type #753



DIAL CORD DRIVE

CHASSIS—BOTTOM VIEW





SWITCH (48) IN AC-DC POSITION

IF = 455KC

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
1	1R5	1.75V.DC	93V.DC	77V.DC	3.4V.DC	1.75V.DC	0V.	3.4V.DC
2	1U5	3.4V.DC	93V.DC	93V.DC	93V.DC	3.4V.DC	0V.	5V.DC
3	1S5	0V.	42V.DC	12V.DC	6.7V.DC	30V.DC	- 1V.DC	1.75V.DC
4	3Q4	5V.DC	87V.DC	0V.	93V.DC	6.6V.DC	87V.DC	8.2V.DC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
1	1R5	*	140KΩ	144KΩ	65Ω	*	5 MEG.	*
2	1U4	*	140KΩ	140Ω	85KΩ	*	10 MEG.	*
3	1S5	*	1Ω MEG.	1Ω MEG.	2.8MEG	580KΩ	10MEG.	*
4	3Q4	*	140KΩ	2.4MEG	140KΩ	*	140KΩ	*

*DO NOT USE OHMMETER TO MEASURE FILAMENT RESISTANCE.

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

477-8

The stage gain measured values listed above are approximate values for an average stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is shorted to chassis.

1 - DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1000 ohms per volt.
2 - Socket connections are shown as bottom views.
3 - Measured values are from socket pin to common negative.
4 - Line voltage maintained at 117 volts for voltage readings.
5 - Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6 - Volume control at maximum, no signal applied for voltage measurements.

CLEARSONIC MODEL 5C66

TRADE NAME	Clearsonic, Model 5C66
MANUFACTURER	U.S. Television Mfg. Co., 3 West 61st St., New York, N.Y.
TYPE SET	AC-DC Operated Superheterodyne Receiver with Self Contained Loop Antenna
TUBES (FIVE)	Types, 12SA7GT Converter, 12SK7GT IF Amp., 12SQ7GT Det.-AVC-AF, 50L6GT Power Output, 35Z5GT Rectifier.
POWER SUPPLY	110-120 Volts AC-DC
TUNING RANGE—BROADCAST	535-1620KC RATING .250 Amp. @ 117 Volts AC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer, turn tuning capacitor fully closed and set pointer parallel with base of dial. Use isolation transformer if available. If not, connect a capacitor in series with low side of signal generator and B-. Volume control at maximum position. Output of signal generator should be no higher than necessary to obtain output reading. Use an insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD.	High side to Pin 8 (grid) 12SA7. Low side to B-.	455KC	High freq. end of dial.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If isolation transformer is not used, reduce dummy antenna to .001 MFD to reduce hum modulation.
200MMFD	High side to ext. ant. lead. Low side to ext. gnd. lead.	1600KC	1600KC	"	A5	Adjust for maximum output.
200MMFD	"	1400KC	Tune for maximum output.	"	A6	" " " "
200MMFD	"	600KC	600KC	"	A7	Remove dial to get access to slug adjustment. Rock tuning control and adjust for maximum output. Repeat last three steps.

CLEARSONIC
MODEL 5C66

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed." "Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1947 by Howard W. Sams & Co., Inc., Indianapolis, Indiana, U. S. A. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc."

PARTS LIST AND DESCRIPTIONS

CLEARSONIC MODEL 5C66

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: US TELEVISION PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	Converter	12SA7GT	12SA7GT	8AD	
2	IF Amp.	12SK7GT	12SK7GT	8N	
3	Det.-AVC-AF	12SQ7GT	12SQ7GT	8Q	
4	Power Output	50L6GT	50L6GT	7AC	
5	Rectifier	35Z5GT	35Z5GT	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: US TELE. PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
6	40	150	PA-4300-1	PRS150-40	BR4015	TC48	M-40-150	UT-401	Filter
7	40	150	PA-4300-1	PRS150-40	BR4015	TC48	M-40-150	UT-401	"
8	10	150	PA-4300-5	PRS150-10	BR1215	TC42	M-10-150	UT-121	"
9	10	50		PRS50-10	BR105	TC32	M-10-50	TA-510	Output Cath. Bypass
10	.05	600	PC40GM-503	684-05	DT6S5	TP415	S-6-05	TC-15	Line Filter
11	.01	400	PC40GL-103	484-01	DT4S1	TP421	S-4-01	TC-11	Output Plate Bypass
12	.01	400	PC40GL-103	484-01	DT4S1	TP421	S-4-01	TC-11	Audio Coupling
13	.05	200	PC40GK-503	484-05	DT4S5	TP426	S-4-05	TC-15	Audio Plate Decoup.
14	.01	400	MC40GL-103	484-01	DT4S1	TP421	S-4-01	TC-11	Audio Coupling
15	.05	200	PC40GK-503	484-05	DT4S5	TP426	S-4-05	TC-15	AVC Filter
16	.02	400	PC40GL-204	484-02	DT4S2	TP423	S-4-02	TC-12	Line Isolation
17	.05	200	PC40GK-503	484-05	DT4S5	TP426	S-4-05	TC-15	RF Bypass Pwr. Supp.
18	500	500		1468-0005	5W5T5	MC245	MO.5-35	1FM-35	Audio Plate Bypass
19	500	500		1468-0005	5W5T5	MC245	MO.5-35	1FM-35	IF Bypass Vol. Cont.
20	100	500	MC60G-101	1468-0001	5W5T1	MC235	MO.5-31	1FM-31	Osc. Grid Capacitor
45	50	500		1468-00005	5W5S5	MC225	MO.5-45	1FM-45	Loop Coupling

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: US TELEVISION PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
21A	500KΩ	1	PA4400-2	MR48	D13-133	M-60-Z	Volume Control
B	Shaft		Not Req.	Not Req.	A	Not Req.	Attach to 21A per instructions
C	Switch		" "	M26	41	SW-A	" " " " "

RESISTORS

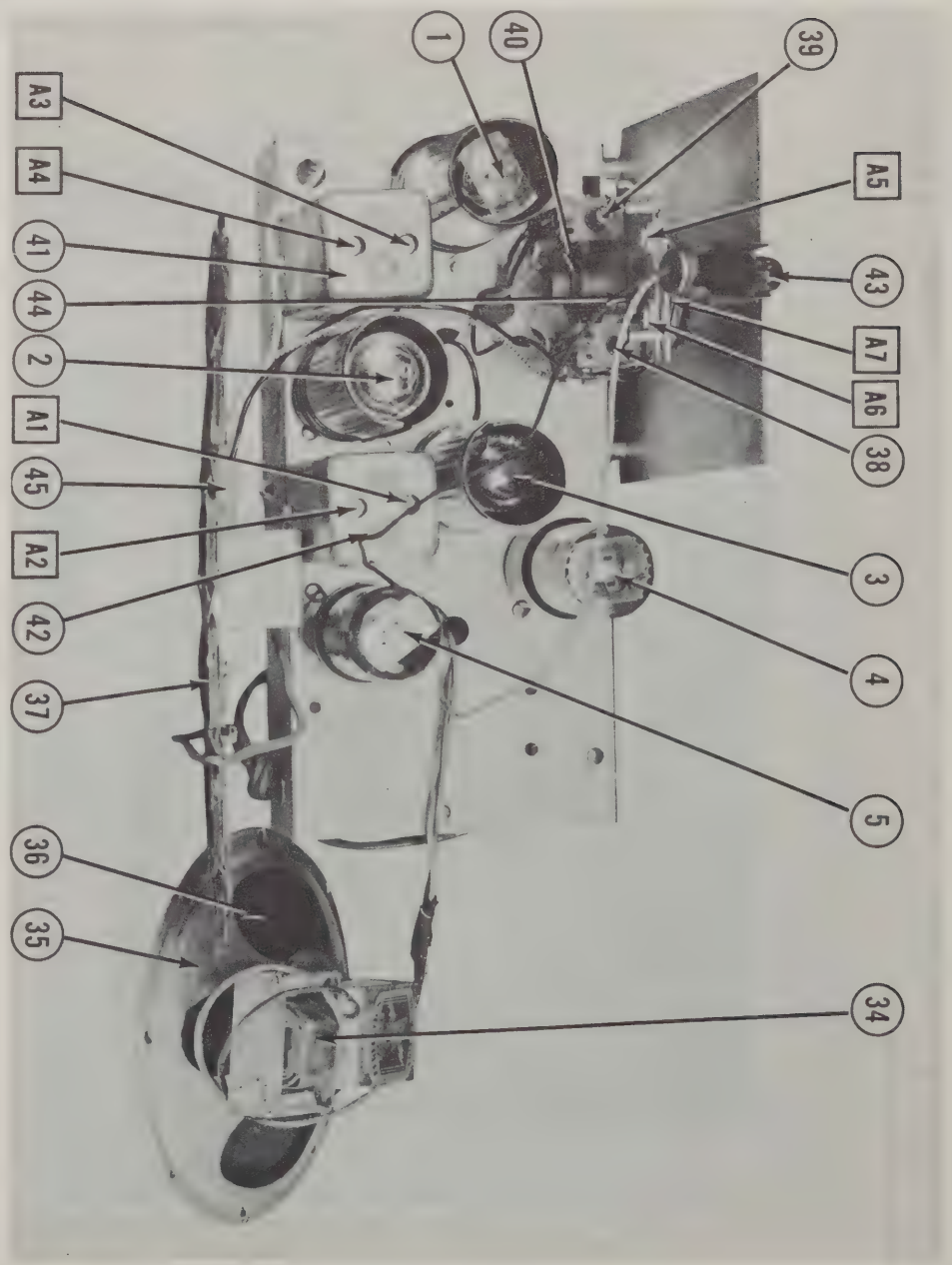
ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: US TELEV. PART No.	IRC PART No.	IDENTIFICATION CODES
22	20KΩ	½	R1S-223	BTS-22K	Red-Blk.-Or. Oscillator Grid
23	10 Meg.	½	R1S-106	BTS-10 Meg.	Br.-Blk.-Blue AVC Network-See Note 1
24	2 Meg.	½	R1S-225	BTS-2.2 Meg.	Red-Blk.-Grn. AVC Network
25	10 Meg.	½	R1S-106	BTS-10 Meg.	Br.-Blk.-Blue AF Grid
26	300KΩ	½	R1S-334	BTS-330K	Or.-Blk.-Yl. AF Plate Load
27	100KΩ	½	R1S-104	BTS-100K	Br.-Blk.-Yl. AF Plate Decoupling
28	510KΩ	½	R1S-514	BTS-470K	Grn.-Br.-Yl. Output Grid
29	150Ω	1	R1G-151	BW-1-150	Br.-Grn.-Br. Output Cathode
30	2200Ω	1	R2S-222	BTA-2200	Red-Red-Red Filter
31	390Ω	1	R2S-391	BW-1-390	Or.-White-Br. "
32	5600Ω	½		BTS-5600	Grn.-Blue-Red Parasitic Suppressor-See Note 1
33	1000Ω	½		BTS-1000	Br.-Blk.-Red " " " " 1

Note 1 - Not used in all models

TRANSFORMER (OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: US TELEVISION PART No.	STANCOR PART No.	THORDAR'N PART No.		INSTALLATION NOTES
34	2300Ω	3.4Ω	180Ω	.6Ω	Part of PC-63000-3	A-3876*	T22S45*		*Bend mounting tabs down, file out slots and mount on Original bracket.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			US TELEVISION PART No.	JENSEN PART No.		
	FIELD	VC IMP.		ST-107		
35	PM	3.4Ω	PC-63000-3	Mod. P5-V		
	CONE DIA.	VC DIA.				
36	4-13/16"	1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.			

R F COILS

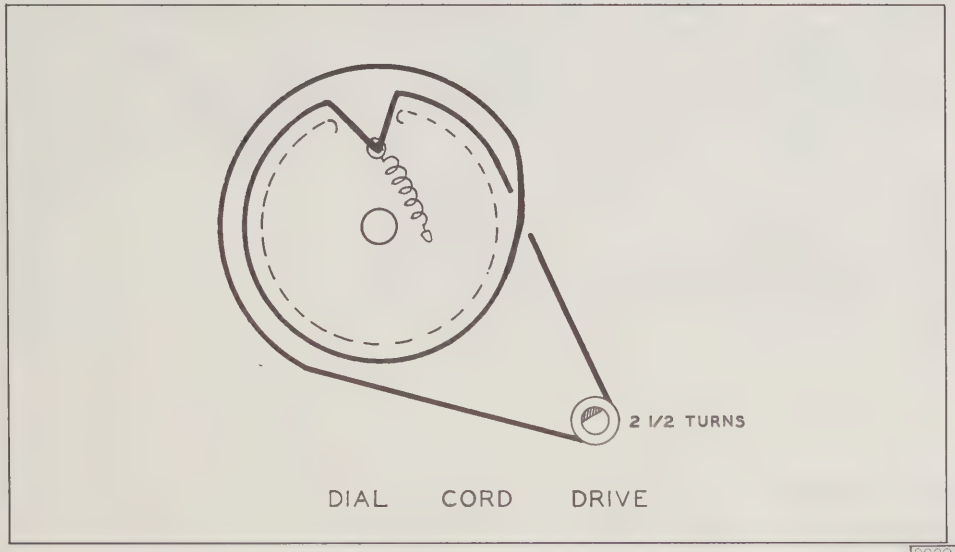
ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	US TELE. PART No.	MEISSNER PART No.	
37	Loop Ant.	0Ω	1.5Ω			
38	Ant. Coil	2Ω	8Ω			38 Part of tuning assby.
39	Osc. Coil		9Ω			39 " " " "
40	Osc. Shunt Coil		7.5Ω			40 " " " "
41	Input IF	16Ω	16Ω	AB42202	16-6658	
42	Output IF	15Ω	16Ω	AB42203	16-6660	

DIAL LIGHT

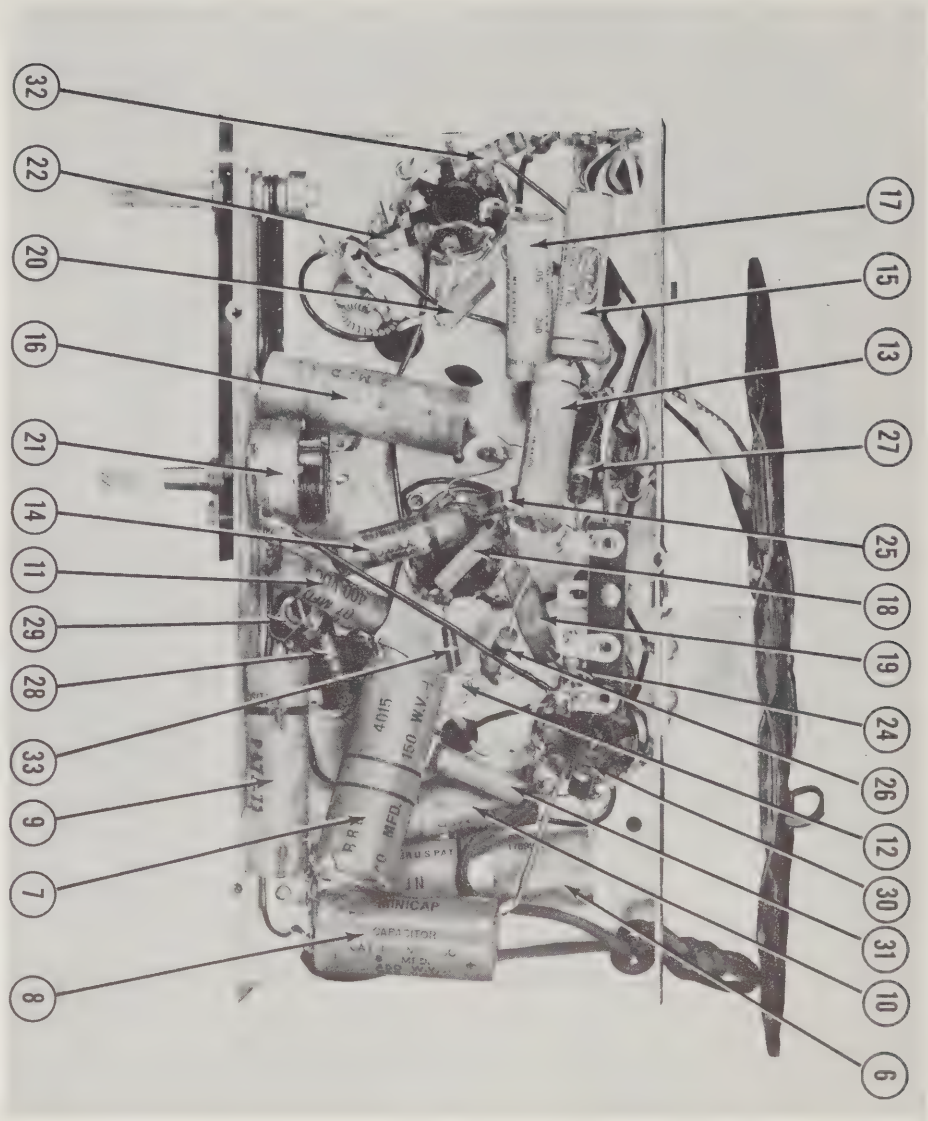
ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					US TELEVISION PART No.		
43	Bayonet	6-8	0.15	Brown	PA-4100		Type 47

MISCELLANEOUS

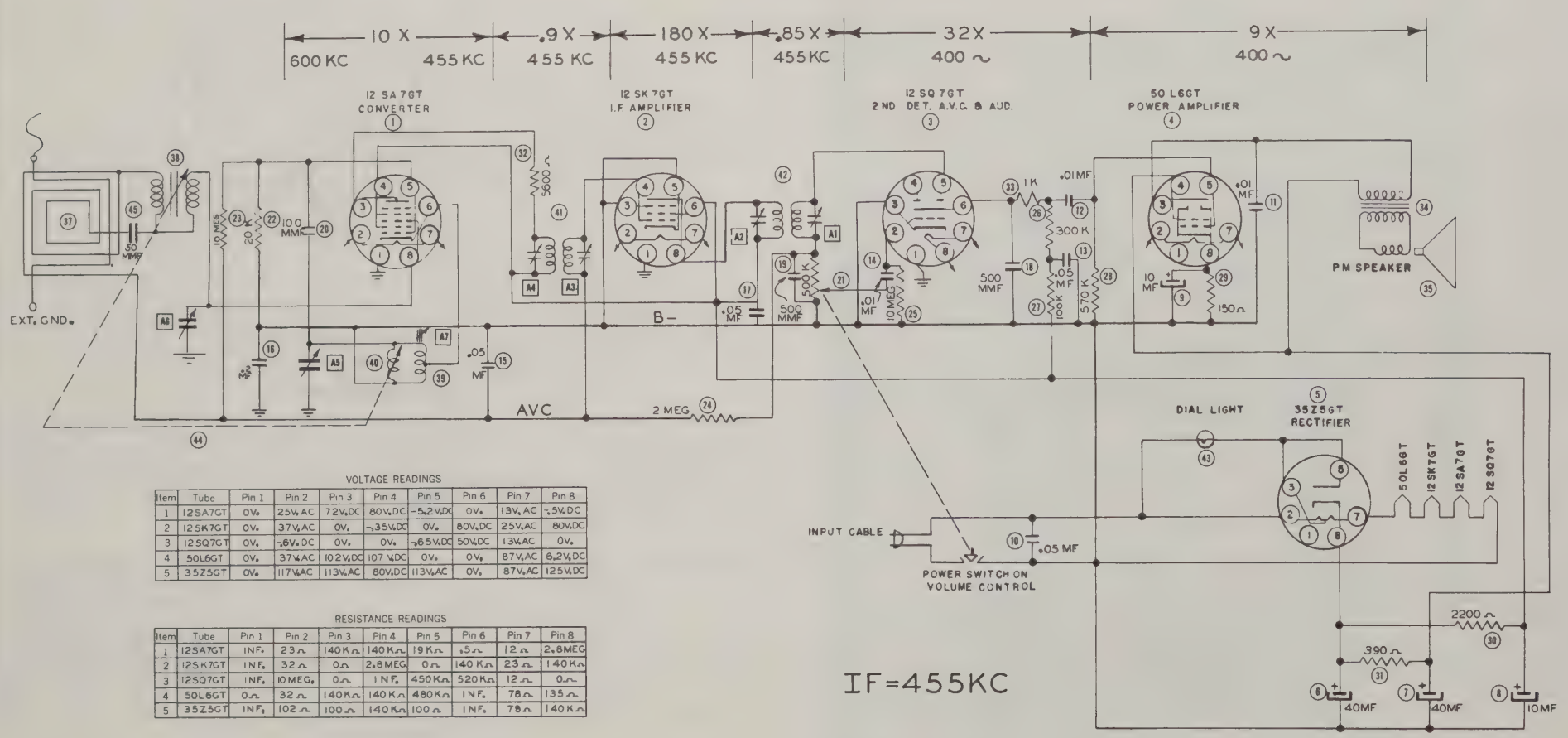
ITEM No.	PART NAME	US TELEVISION PART No.	NOTES
44	Tuner Assby.		



CHASSIS—BOTTOM VIEW



CLEARSONIC MODEL 5066



VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SA7GT	0V.	25V.AC	72V.DC	80V.DC	-5.2V.DC	0V.	13V.AC	-.5V.DC
2	12SK7GT	0V.	37V.AC	0V.	-.35V.DC	0V.	80V.DC	25V.AC	80V.DC
3	12SQ7GT	0V.	-.6V.DC	0V.	0V.	-.65V.DC	50V.DC	13V.AC	0V.
4	50L6GT	0V.	37V.AC	102V.DC	107 V.DC	0V.	0V.	87V.AC	6.2V.DC
5	35Z5GT	0V.	117V.AC	113V.AC	80V.DC	113V.AC	0V.	87V.AC	125V.DC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SA7GT	INF.	23 Ω	140 KΩ	140 KΩ	19 KΩ	.5Ω	12 Ω	2.8MEG
2	12SK7GT	INF.	32 Ω	0Ω	2.8 MEG.	0Ω	140 KΩ	23 Ω	140 KΩ
3	12SQ7GT	INF.	10 MEG.	0Ω	INF.	450 KΩ	520 KΩ	12 Ω	0Ω
4	50L6GT	0Ω	32 Ω	140 KΩ	140 KΩ	480 KΩ	INF.	78Ω	135Ω
5	35Z5GT	INF.	102 Ω	100 Ω	140 KΩ	100 Ω	INF.	78Ω	140 KΩ

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

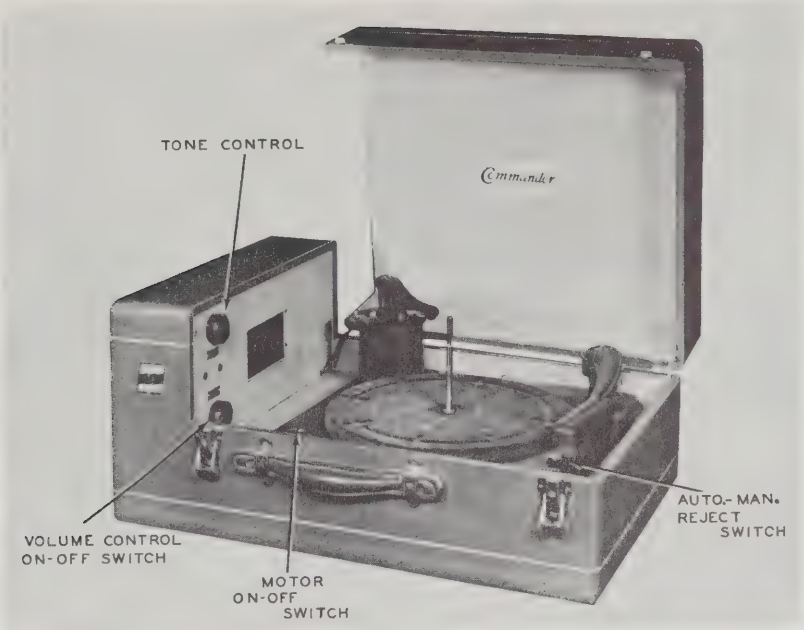
THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

477-9

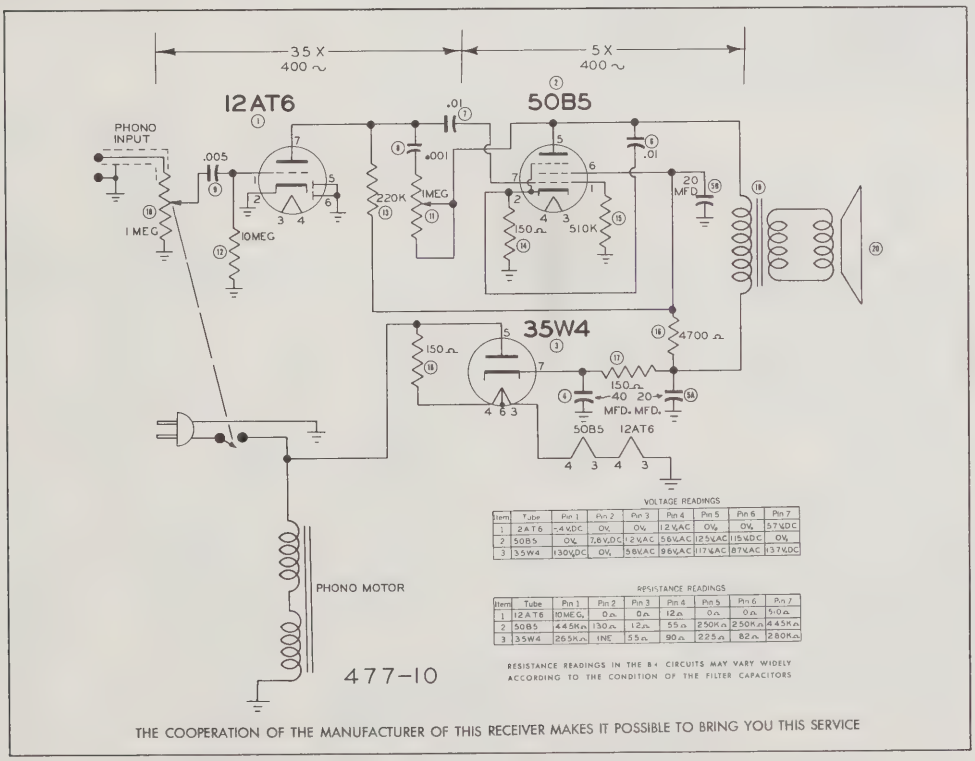
The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

COMMANDER
3-TUBE RECORD PLAYER



TRADE NAME	Commander Record Player
MANUFACTURER	Commander Industries, 3700 W. Roosevelt Road, Chicago, Ill.
TYPE SET	AC Operated Portable Phonograph with 3-Tube Amplifier and Speaker
TUBES (THREE)	Types, 12AT6 AF Amp., 50B5 Power Output, 35W4 Rectifier.
POWER SUPPLY	110-120 Volts AC RATING .230 Amp. @ 117 Volts AC



THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

HOWARD W. SAMS & CO., INC. **Indianapolis Indiana**

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed." "Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1947 by Howard W. Sams & Co., Inc., Indianapolis, Indiana, U. S. A. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc."

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: COMMANDER PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	AF Amp.	12AT6	12AT6	7BT	
2	Power Output	50B5	50B5	7BZ	
3	Rectifier	35W4	35W4	5BQ	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: COMMANDER PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
4	40	150		PRS150-40	BR4015	TC48	M-40-150	UT-401	Filter
5A	20	150		PRSA150-20-20	BRD2215	2N509	M-2x20-150	TA-220	"
B	20	150							"
6	.01	600		684-01	DT6S1	TP410	S-6-01	TC-11	Output Plate Bypass
7	.01	600		684-01	DT6S1	TP410	S-6-01	TC-11	Audio Coupling
8	.001	600		684-001	DT6D1	TP404	S-6-001	TC-21	Tone Compensation
9	.005	600		684-005	DT6D5	TP408	S-6-005	TC-25	Audio Coupling

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: COMMANDER PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
10A	1 Meg.	1		MR53	D13-137	M-63-Z	Volume Control
B	Shaft			Not Req.	A	Not Req.	Attach to 10A per instructions
C	Switch			M26	41	SW-A	" " " " "
11A	1 Meg.	1		MR53	D13-137	M-63-Z	Tone Control
B	Shaft			Not Req.	A	Not Req.	Attach to 11A per instructions

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: COMMANDER PART No.	IRC PART No.	IDENTIFICATION CODES
12	10 Meg.	½		BTS-10 Meg.	Br.-Blk.-Blue 1st AF Grid
13	220KΩ	½		BTS-220K	Red-Red-Yl. 1st AF Plate Load
14	150Ω	1		BW-1-150	Br.-Grn.-Br. Output Cathode
15	510KΩ	½		BTS-470K	Grn.-Br. Yl. Output Grid
16	4700Ω	½		BTS-4700	Yl.-Vi.-Red Filter
17	150Ω	5		AB-150	"
18	150Ω	5		AB-150	Rectifier Ballast

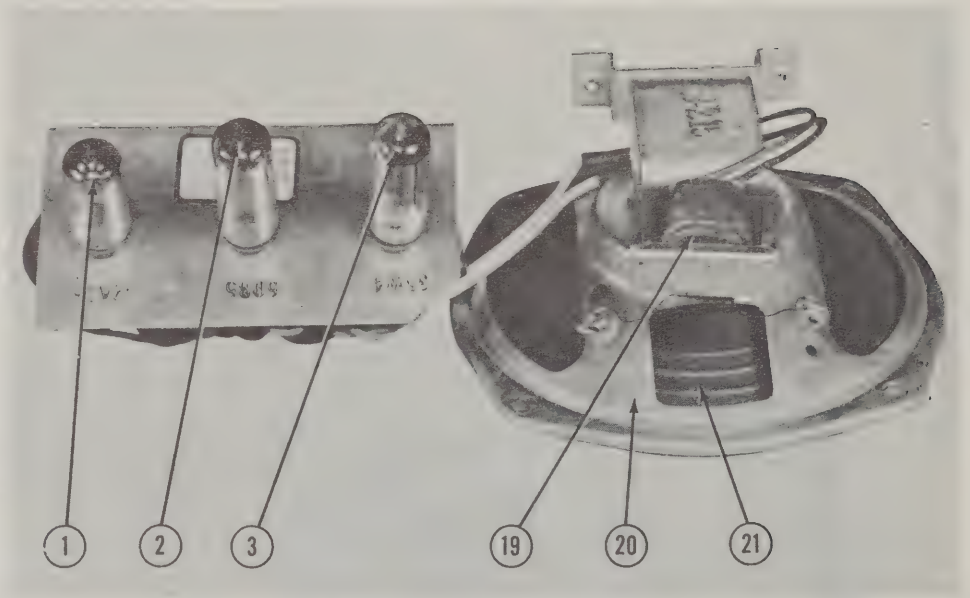
TRANSFORMER (OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: COMMANDER PART No.	STANCOR PART No.	THORDAR'N PART No.		INSTALLATION NOTES
19	1400Ω	3.3Ω	150Ω	1.0Ω		A-3865*	T22S45*		*Bend mounting tabs down, file out slots and mount on original bracket.

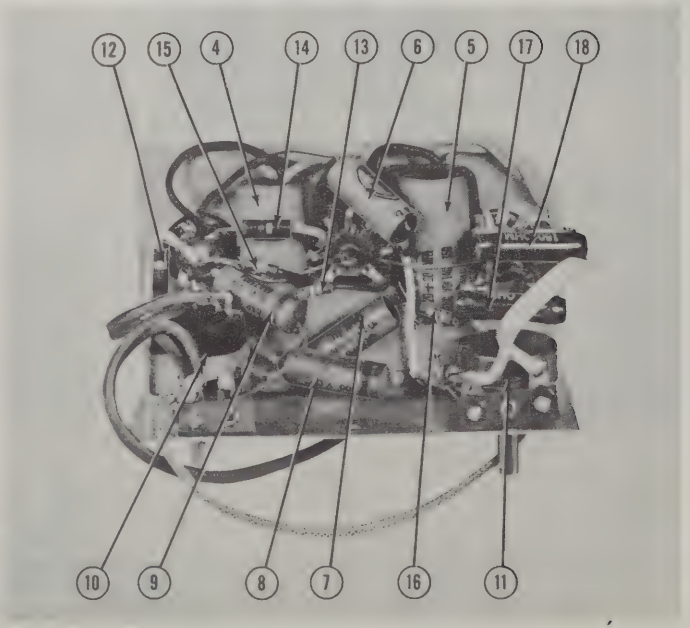
SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA: COMMANDER PART No.	JENSEN PART No.		INSTALLATION NOTES
20	FIELD PM	VC IMP. 3.3Ω		ST-108 Mod. P6-X		
21	CONE DIA. 6"	VC DIA. 1/2"	NOT READILY REPLACEABLE—USE COMPLETE SPEAKER UNIT			

CHASSIS—TOP VIEW



CHASSIS—BOTTOM VIEW



CROSLEY
MODELS 56 TS, 56 TR

CROSLEY
MODELS 56 TS, 56 TR

CROSLEY MODEL 56TS

TRADE NAME	Crosley, Model 56TS (Automatic Changer), 56TR (Manual Record Player)
MANUFACTURER	Crosley Corp., 1329 Arlington St., Cincinnati, Ohio
TYPE SET	AC Operated Phono-Radio Combination Superheterodyne - Self Contained Loop Antenna
TUBES (FIVE)	Types, 12SA7 Converter, 12SK7 IF Amp., 12SQ7 Det.-AVC-AF, 50L6GT Power Output, 35Z5GT Rectifier.
POWER SUPPLY	105-125 Volts AC
TUNING RANGE—BROADCAST	540-1600KC **SHORT WAVE** .250 Amp. @ 117 Volts AC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer, turn tuning cap fully closed and set pointer to notch on left end of dial backplate. Use isolation transformer if available. If not, connect a capacitor in series with low side of signal generator and B-. Loop should be maintained in same relative position to chassis as when receiver is in cabinet. Volume control at maximum position. Output of signal generator should be no higher than necessary to obtain output reading. Use an insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
200MMFD	High side to ext. ant. lead. Low side to B-.	455KC	Tuning cap. fully open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output.
200MMFD	"	1620KC	"	"	A5	" " " "
200MMFD	"	1400KC	Tune for maximum output.	"	A6	Adjust for maximum output. After receiver is in cabinet tune in a weak station about 1400KC and adjust A6 for maximum output.

DISASSEMBLY INSTRUCTIONS

1. Remove three push-on type control knobs.
2. Remove five Phillips head screws holding loop ant. to rear of cabinet.
3. Remove four screws holding chassis mounting board to cabinet. Remove chassis on mounting board.
4. Unsolder phono-motor leads.
5. Unsolder phono-pickup leads.
6. Remove two bolts holding record changer. Lift up changer.
7. Remove screw holding speaker bracket. Remove speaker and bracket.
8. Remove three bolts holding mounting board to chassis. Remove mounting board.
9. Remove four self-tapping screws holding shield to chassis. Remove shield.

HOWARD W. SAMS & CO., INC. **Indianapolis Indiana**

"The listing of any available replacement part herein does not constitute in any case a recommendation warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed." "Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1947 by Howard W. Sams & Co., Inc., Indianapolis, Indiana, U. S. A. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc."

PARTS LIST AND DESCRIPTIONS

CROSLEY MODELS 50TS, 52TR

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: CROSLEY PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	Converter	12SA7	12SA7	8R	
2	IF Amp.	12SK7	12SK7	8N	
3	Det.-AVC-AF	12SQ7	12SQ7	8Q	
4	Power Output	50L6GT	50L6GT	7AC	
5	Rectifier	35Z5GT	35Z5GT	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: CROSLEY PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
6A	20	150	B-135732		EZ532215C‡	2N509	DSB-804020-150	EL-221	Filter - Blue *
B	60	150						UT-501	" - Red
C	20	150				TC50			" - Green
6A	50	150	B-136770	PRSA150-50-30	BRD3515	2N520	M-5030-150	TA-530	Filter
B	30	150							"
7	.05	600	39001-17	684-05	DT6S5	TP410	S-6-05	TC-15	Line Filter
8	.022	600	39001-80	684-02	DT6S2	TP412	S-6-02	TC-12	Output Plate Bypass
9	.022	600	39001-80	684-02	DT6S2	TP412	S-6-02	TC-12	Audio Coupling
10	.0033	600	39001-76	684-003	DT6D3	TP406	S-6-003	TC-23	" "
11	.02	600	39001-80	684-02	DT6S2	TP412	S-6-02	TC-12	Hum Feedback †
12	.0033	600	39001-76	684-003	DT6D3	TP406	S-6-003	TC-23	Tone Compensation
13	.075	600		684-075	DT6S6	TP452	S-6-06	TC-16	Ant. Isolation
14	.1	600	39001-19	684-.1	DT6P1	TP418	S-6-1	TC-1	Line Isolation
15	.05	600	39001-17	684-05	DT6S5	TP415	S-6-05	TC-15	AVC Filter
16	250	500	39001-73	1468-00025	5W5T25	MC240	MO.5-325	1FM-325	Audio Plate Bypass

*Used in early productions.
†Used with two section filters.
‡Do not use bypass section.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: CROSLEY PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
17A	1 Meg.	1	B-135602	MK402	D13-137	AM-63-Z	Volume Control
B	Shaft		Not Req.	Not Req.	E	KSS-3	Attach to 17A per instructions
C	Switch		" "	M26	41	SW-A	" " " " "

RESISTORS

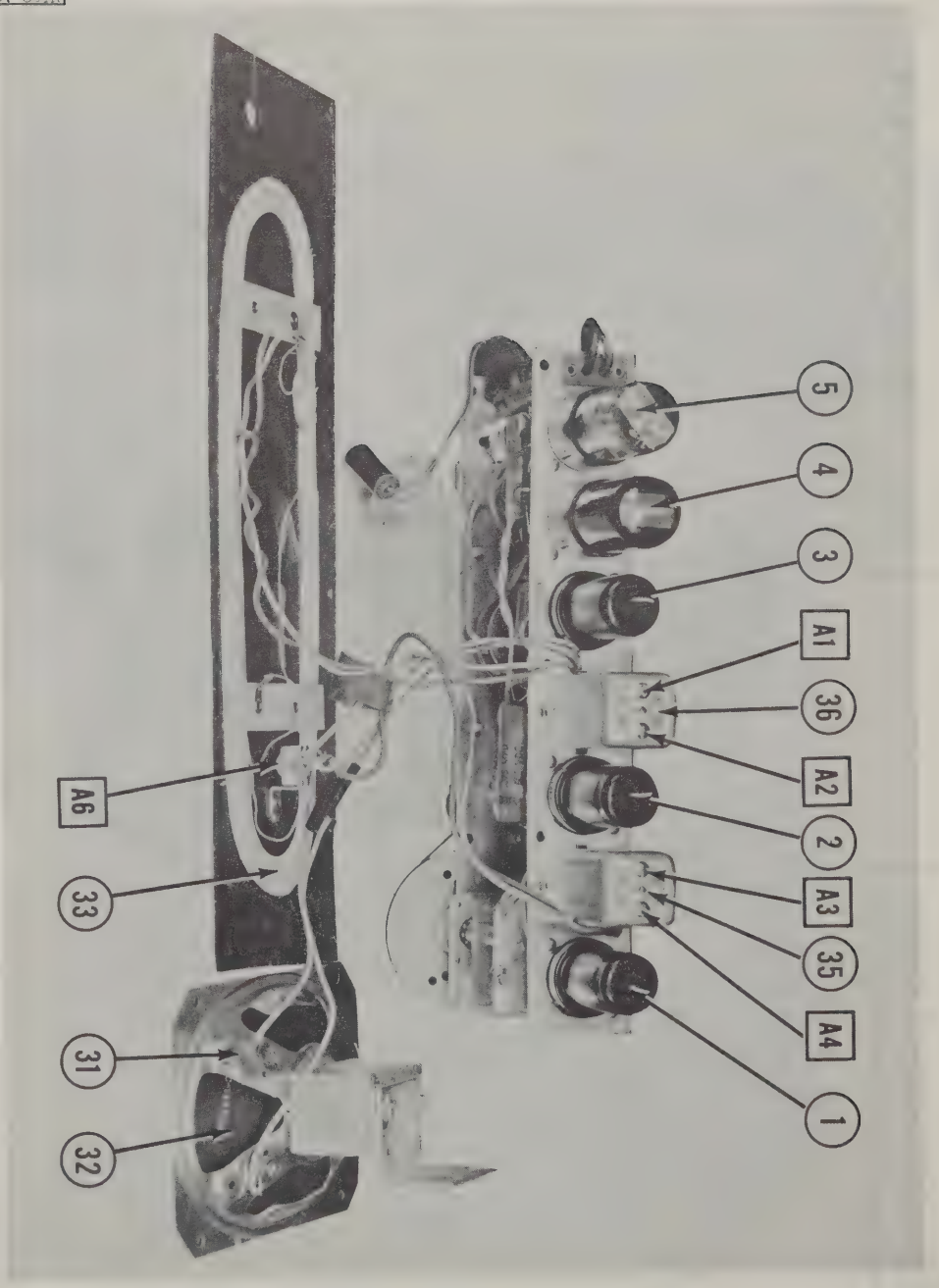
ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: CROSLEY PART No.	IRC PART No.	IDENTIFICATION CODES
18	15 Meg.	½	39294-38	BTS-15 Meg.	Br.-Grn.-Blue AVC Network
19	22KΩ	½	39294-21	BTS-22K	Red-Red-Or. Oscillator Grid
20	220KΩ	½	39294-27	BTS-220K	Red-Red-Yl. Line Isolation
21	3.3 Meg.	½	39294-34	BTS-3.3 Meg.	Or.-Or.-Grn. AVC Network
22	22KΩ	½	39294-21	BTS-22K	Red-Red-Yl. Tone Compensation-See Note 1
23	5 Meg.	½	39294-35	BTS-4.7 Meg.	Grn.-Blk.-Grn. AF Grid
24	470KΩ	½	39294-29	BTS-470K	Yl.-Vi.-Yl. AF Plate Load
25	470KΩ	½	39294-29	BTS-470K	Yl.-Vi.-Yl. Output Grid
26	150Ω	½	39294-8	BW-½-150	Br.-Grn.-Br. Output Cathode
27	1200Ω	1	39015-26	BTA-1200	Br.-Red-Red Filter
28	47Ω	1	W-137367	BW-1-47	Surge Limiter
29	150Ω	½	39294-8	BW-½-150	Br.-Grn.-Br. Pilot Light Shunt

Note 1 - Not used in early models.

TRANSFORMER (OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: CROSLEY PART No.	STANCOR PART No.	THORDAR'N PART No.		INSTALLATION NOTES
30	2100Ω	3.7Ω	230Ω	1.0Ω	B-137723	A-3876#	T22S45#		#File mounting holes to fit replacement.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA: CROSLEY PART No.	JENSEN PART No.		INSTALLATION NOTES
	FIELD	VC IMP.				
31A B	PM	3.7Ω	C-136420 C-135633			Alternate speaker.
	CONE DIA.	VC DIA.				
32	4"x6"	1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT			

R F COILS

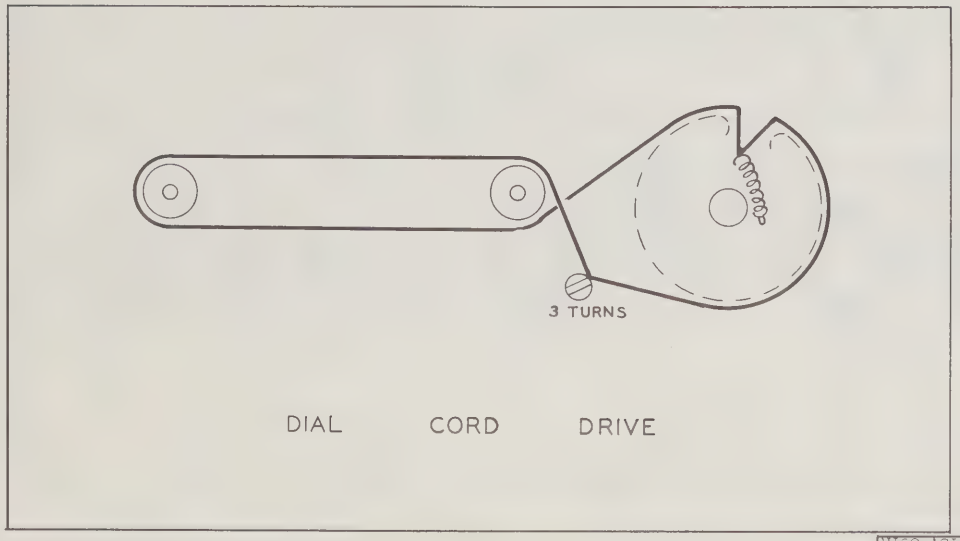
TEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA: CROSLEY PART No.	MEISSNER PART No.	
33	Loop Ant.	.1Ω	2.5Ω	AC-135840		
34	Osc. Coil	.5Ω	5.5Ω	AW-135730	14-1040	Add 50MMFD from grid to high side of tuning cap.
35	Input IF	33Ω	33Ω	AW-135729	16-6658	
36	Output IF	32Ω		AW-135731	16-6670	

DIAL LIGHT

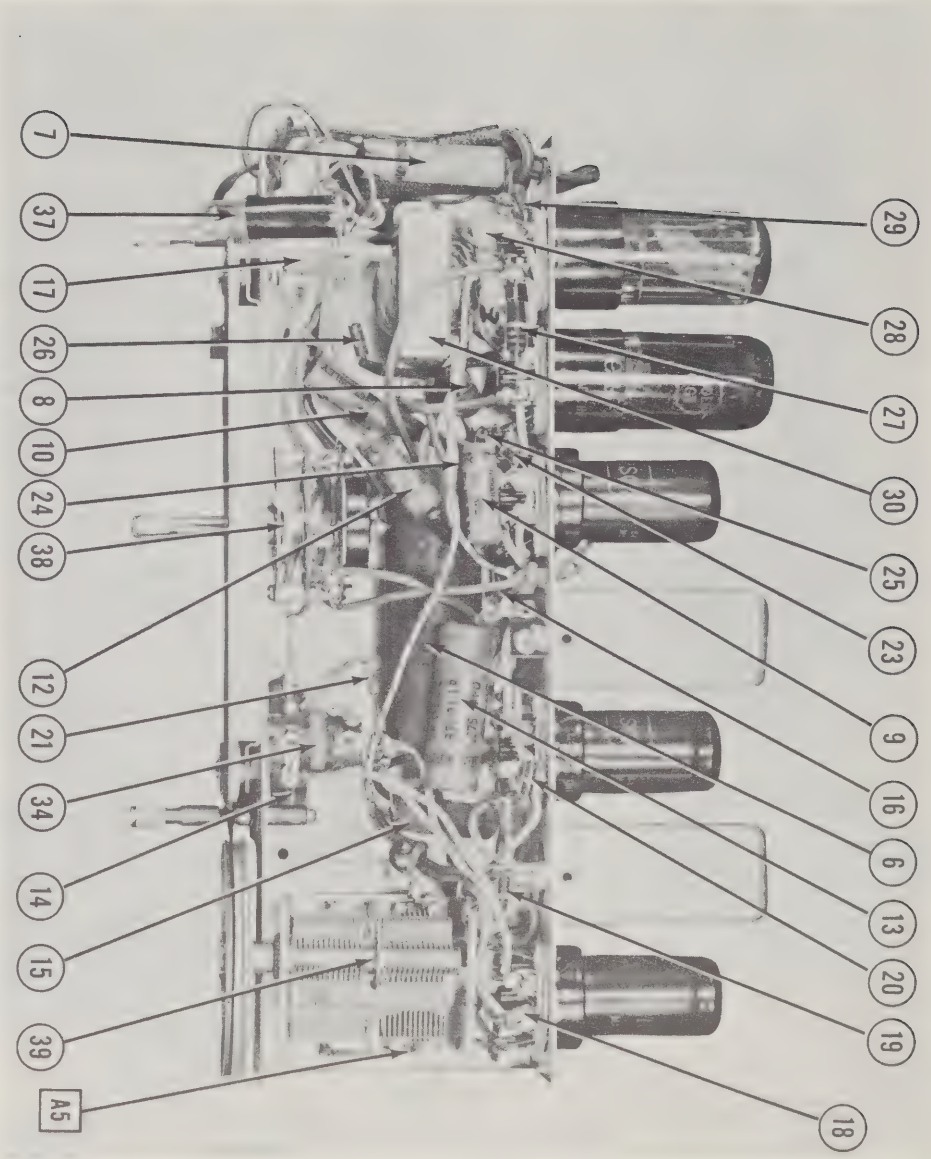
ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA: CROSLEY PART No.		INSTALLATION NOTES
37	Bayonet	6-8	0.15	Brown	W-48858		Type 47

MISCELLANEOUS

ITEM No.	PART NAME	CROSLEY PART No.	NOTES
38	Switch	B-135641	Radio-Phono-Tone
39	2 Gang Var. Cap.	B-135570	(13-467MMF), 35-278MMF)
	Dial Pointer	B-135460	
	Dial Glass	B-135751	

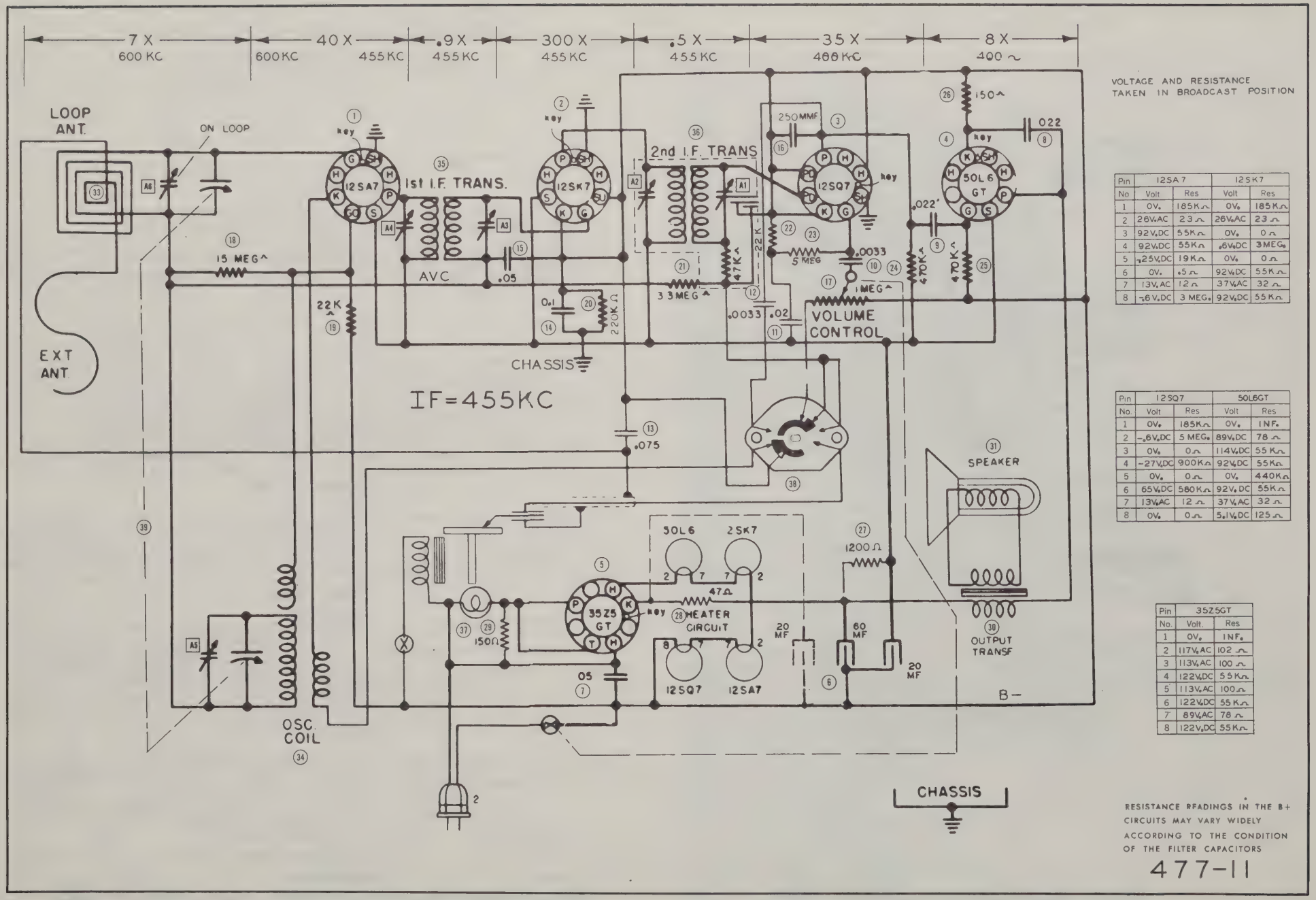


CHASSIS—BOTTOM VIEW



CROSLEY MODELS 56TS, 57TK

CROSLEY MODELS 56TS, 57TK



VOLTAGE AND RESISTANCE TAKEN IN BROADCAST POSITION

Pin No	12SA7 Volt	12SA7 Res	12SK7 Volt	12SK7 Res
1	0V.	185KΩ	0V.	185KΩ
2	26V.AC	2.3Ω	26V.AC	2.3Ω
3	92V.DC	55KΩ	0V.	0Ω
4	92V.DC	55KΩ	.6V.DC	3MEG.
5	-2.5V.DC	19KΩ	0V.	0Ω
6	0V.	.5Ω	92V.DC	55KΩ
7	13V.AC	1.2Ω	37V.AC	32Ω
8	-.6V.DC	3 MEG.	92V.DC	55KΩ

Pin No.	12SQ7 Volt	12SQ7 Res	50L6GT Volt	50L6GT Res
1	0V.	185KΩ	0V.	INF.
2	-.6V.DC	5 MEG.	89V.DC	78Ω
3	0V.	0Ω	114V.DC	55KΩ
4	-27V.DC	900KΩ	92V.DC	55KΩ
5	0V.	0Ω	0V.	440KΩ
6	65V.DC	580KΩ	92V.DC	55KΩ
7	13V.AC	1.2Ω	37V.AC	32Ω
8	0V.	0Ω	5.1V.DC	125Ω

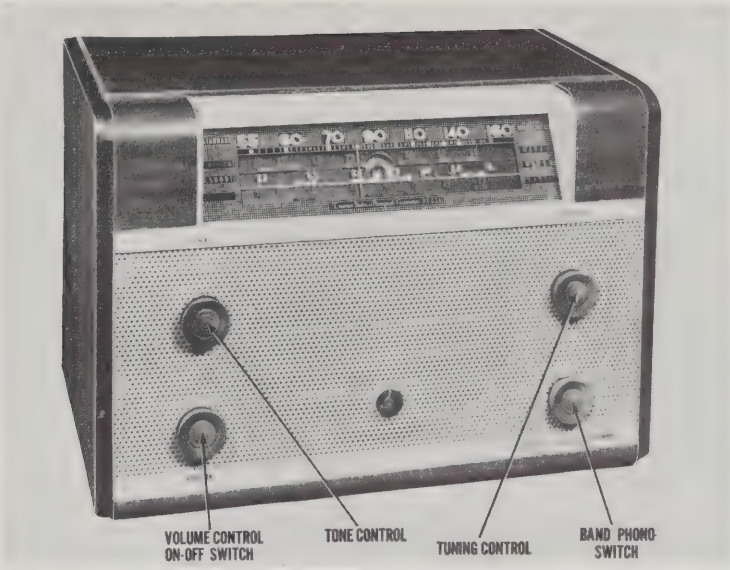
Pin No.	35Z5GT Volt.	35Z5GT Res
1	0V.	INF.
2	117V.AC	10.2Ω
3	113V.AC	10.0Ω
4	122V.DC	55KΩ
5	113V.AC	10.0Ω
6	122V.DC	55KΩ
7	89V.AC	78Ω
8	122V.DC	55KΩ

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

477-11

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of + 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.



EMERSON MODEL 524

TRADE NAME	Emerson, Model 524
MANUFACTURER	Emerson Radio & Phono Corp., 111 Eighth Ave., New York, N.Y.
TYPE SET	AC Operated Multi-Band Superheterodyne - Three Self Contained Loop Antennas
TUBES (TEN)	Types, 6SG7 RF Amp., 6SA7 Mixer, 6J5 Oscillator, 6SG7 IF Amp., 6H6 Det.-AVC., 6SL7GT Phase Inverter-AF, (2) 6V6GT Power Output, 5U4G Rectifier, 6U5/6G5 Tuning Eye.
POWER SUPPLY	110-120 Volts AC Rating .850 Amp. @ 117 Volts AC
TUNING RANGE—BROADCAST	530-1625KC **SHORT WAVE** 1530KC-4.3MC, 4.15-10.4MC, 10.15-22.3MC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer, turn tuning cap fully closed and set pointer to end of dial line at low freq. end of dial. Loop should be maintained in same relative position to chassis as when receiver is in cabinet. For first 13 steps ant. switch should be in ext. ant. position. Volume control at maximum position. Output of signal generator should be no higher than necessary to obtain output reading. Use an insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD.	High side to center stator of tuning cap. Low side to chassis.	455KC	BC	Tuning cap. fully open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output
400Ω	High side to ext. ant. lug. Low side to chassis.	4MC	SW B2	4MC	"	A5	Adjust for maximum output
400Ω	"	4MC	"	Tune for maximum output.	"	A6,A7	" " " "
400Ω	"	1.7MC	"	"	"	A8	Rock tuning cap and adjust for maximum output. Repeat last three steps.
200MMFD.	"	1600KC	BC	1600KC	"	A9	Adjust for maximum output
200MMFD.	"	1400KC	"	Tune for maximum output.	"	A10,A11	Adjust for maximum output
200MMFD.	"	600KC	"	"	"	A12	Rock tuning cap and adjust for maximum output. Repeat last three steps.
400Ω	High side to ext. ant. lead. Low side to chassis.	10MC	SW B3	10MC	"	A13	Adjust for maximum output
400Ω	"	5MC	"	5MC	"	A14	Adjust for maximum output Repeat last two steps.
400Ω	"	10MC	"	Tune for maximum output.	"	A15,A16	Rock tuning cap and adjust for maximum output.
400Ω	"	22MC	SW B4	22MC	"	A17	Adjust for maximum output
400Ω	"	11MC	"	11MC	"	A18	Adjust for maximum output Repeat last two steps.
400Ω	"	22MC	"	Tune for maximum output.	"	A19,A20	Rock tuning cap and adjust for maximum output.
400Ω	"	10MC	SW B3	"	"	A21	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output while rocking tuning cap. ant. switch should be in loop position.
400Ω	"	22MC	SW B4	"	"	A22	"

HOWARD W. SAMS & CO., INC. **Indianapolis Indiana**

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed."
"Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1947 by Howard W. Sams & Co., Inc., Indianapolis, Indiana, U. S. A. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc."

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: EMERSON PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	RF Amp.	6SG7	6SG7	8BK	
2	Mixer	6SA7	6SA7	8R	
3	Oscillator	6J5	6J5	6Q	
4	IF Amp.	6SG7	6SG7	8BK	
5	Det.-AVC	6H6	6H6	7T	
6	Tuning Eye	6U5/6G5	6U5/6G5	6R	
7	Phase Inv.-AF	6SL7GT	6SL7GT	8BD	
8	Power Output	6V6GT	6V6GT	7AC	
9	Power Output	6V6GT	6V6GT	7AC	
10	Rectifier	5U4G	5U4G	5T	

CAPACITORS

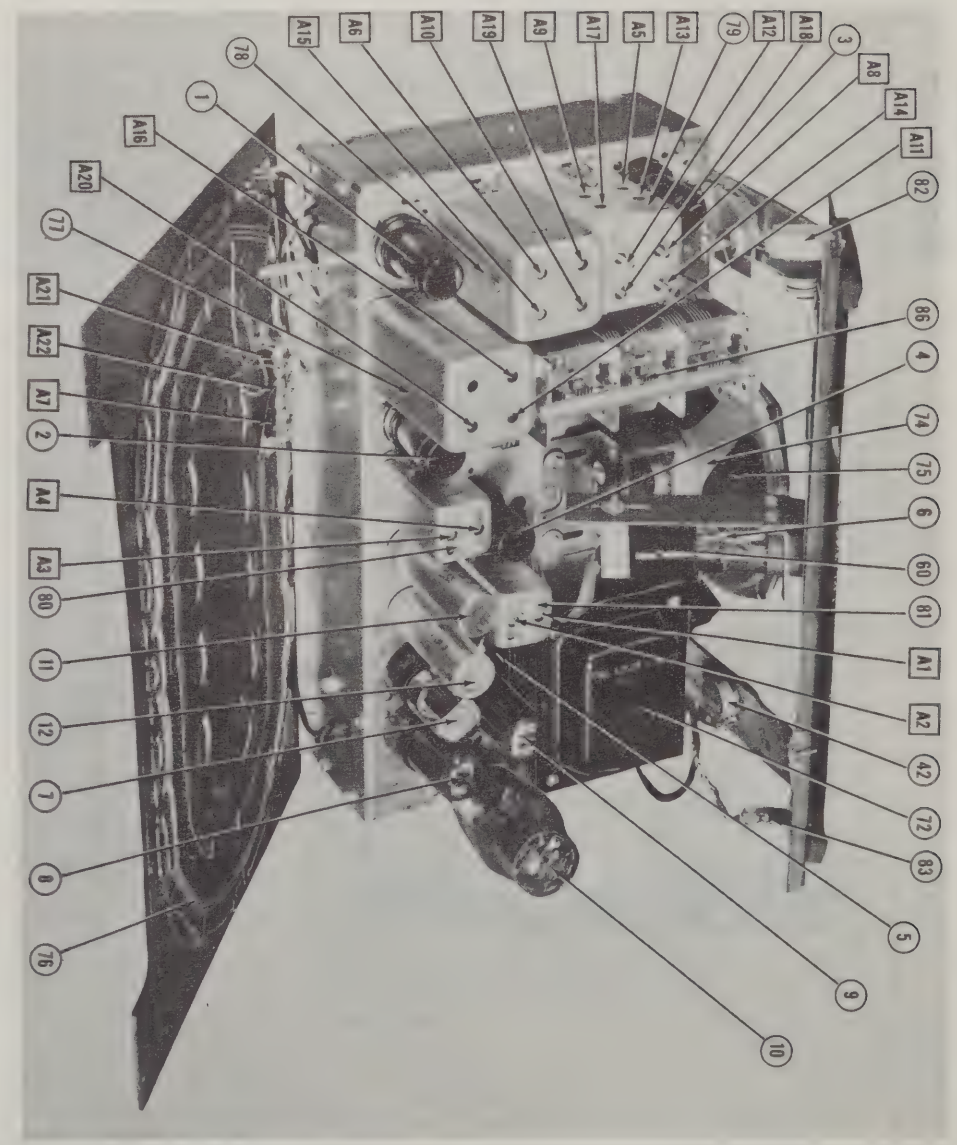
Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: EMERSON PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
11	40	400	925220	AF8J	UP4045	FP146	DY-40-450	EL-4	Filter
12	40	400	925010	AF8J	UP4045	FP146	DY-40-450	EL-4	"
13	16	300	925030	PRS350-16	BR1635	TC65	M-20-350	UT-163	"
14	.01	600	920210	684-01	DT6S1	TP410	S-6-01	TC-11	Audio Coupling
15	.01	600	920210	684-01	DT6S1	TP410	S-6-01	TC-11	" "
16	.01	600	920210	684-01	DT6S1	TP410	S-6-01	TC-11	Tone Compensation
17	.005	600	920230	684-005	DT6D5	TP408	S-6-005	TC-25	Audio Coupling
18	.01	600	920210	684-01	DT6S1	TP410	S-6-01	TC-11	IF Screen Bypass
19	.05	600	920270	684-05	DT6S5	TP415	S-6-05	TC-15	IF Plate Decoupling
20	.01	400	920090	484-01	DT4S1	TP410	S-4-01	TC-11	AVC Filter
21	.1	200	920040	484-.1	DT4P1	TP428	S-4-1	TC-1	IF Cath. Bypass
22	.05	600	920270	684-05	DT6S5	TP415	S-6-05	TC-15	Conv. Plate Decoupling
23	.01	600	920210	684-01	DT6S1	TP410	S-6-01	TC-11	Mixer Screen Bypass
24	.1	200	920040	484-.1	DT4P1	TP428	S-4-1	TC-1	Mixer Cath. Bypass
25	.05	200	920060	484-05	DT4S5	TP426	S-4-05	TC-15	AVC Filter
26	.1	200	920040	484-.1	DT4P1	TP428	S-4-1	TC-1	RF Cath. Bypass
27	.01	600	920210	684-01	DT6S1	TP410	S-6-01	TC-11	RF Screen Bypass
28	.05	200	920060	484-05	DT4S5	TP426	S-4-05	TC-15	AVC Filter
29	500	500		1468-0005	5W5T5	MC245	MO.5-35	1FM-35	Tone Compensation
30	100	500	910100	1468-0001	5W5T1	MC235	MO.5-31	1FM-31	Audio Plate Bypass
31	100	500	910100	1468-0001	5W5T1	MC235	MO.5-31	1FM-31	Tone Compensation
32	560	500	915030						Fixed Padder
33	1500	500	915020						" "
34	3000	500	915010	1464-003	1R5D3	MCB461	MWS.5-23	MS-23	" "
35	6800	500	915000						" "
36	3000	500	910170	1467-003	1W5D3	MC461	MW.5-23	1FM-23	Osc. Feedback
37	100	500	910100	1468-0001	5W5T1	MC235	MO.5-31	1FM-31	Osc. Grid Capacitor
38	68	500	915040						Neutralizing Cer.
39	100	500	910100	1468-0001	5W5T1	MC235	MO.5-31	1FM-31	RF Coupling
40	1000	500	910180	1468-001	1W5D1	MC255	MW.5-21	1FM-21	" "

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: EMERSON PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
41A	500KΩ	1	390070	TM230	D13-133X	AT-78	Volume Control
B	Shaft		Not Req.	S525	E	KSS-3	Attach to 41A per instructions
C	Switch		" "	M26	41	SW-A	" " " " "
42A	500KΩ	1	(390360 or	MK401	D13-133	AM-60-Z	Tone Control
B	Shaft		390080)	Not Req.	E	KSS-3	Attach to 42A per instructions

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	EMERSON PART No.	IRC PART No.	
43	560Ω	¼	310430	BTS-560	Grn.-Blue-Br. Parasitic Suppressor
44	4700Ω	¼	320650	BTS-4700	Yl.-Vl.-Red Antenna Loading
45	220KΩ	¼	321050	BTS-220K	Red-Red-Yl. AVC Network
46	56KΩ	1	370910	BTA-56K	Grn.-Blue-Or. RF Screen Dropping
47	150KΩ	½	320290	BW-½-150	Br.-Grn.-Br. RF Cathode
48	220KΩ	¼	321050	BTS-220K	Red-Red-Yl. AVC Network
49	22KΩ	2	397080	BT-2-22K	Red-Red-Or. Converter Screen Dropping
50	270Ω	½	310390	BW-½-270	Red-Vl.-Br. Converter Cathode
51	4700Ω	¼	340650	BTS-4700	Yl.-Vl.-Red Oscillator Plate Decoupling
52	4700Ω	¼	340650	BTS-4700	Yl.-Vl.-Red Oscillator Plate Load
53	22KΩ	¼	310810	BTS-22K	Red-Red-Or. Oscillator Grid
54	10KΩ	¼	320730	BTS-10K	Br.-Blk.-Or. Oscillator Cathode
55	4700Ω	¼	320650	BTS-4700	Yl.-Vl.-Red Converter Plate Decoupling
56	150Ω	½	320290	BW-½-150	Br.-Grn.-Br. IF Cathode
57	56KΩ	1	370910	BTA-56K	Grn.-Blue-Or. IF Screen Dropping
58	1 Meg.	¼	321210	BTS-1 Meg.	Br.-Blk.-Grn. AVC Network
59	4700Ω	¼	310650	BTS-4700	Yl.-Vl.-Red IF Plate Decoupling
60	1 Meg.	¼	321210	BTS-1 Meg.	Br.-Blk.-Grn. Tuning Eye Plate Load
61	27KΩ	¼	310830	BTS-27K	Red-Vl.-Or. Tone Compensation
62	10 Meg.	¼	321450	BTS-10 Meg.	Br.-Blk.-Blue AF Grid
63	220KΩ	½	351050	BTS-220K	Red-Red-Yl. AF Plate Load
64	220KΩ	½	351050	BTS-220K	Red-Red-Yl. Phase Inverter Plate Load
65	220KΩ	¼	321050	BTS-220K	Red-Red-Yl. Phase Inverter Grid
66	220KΩ	¼	311050	BTS-220K	Red-Red-Yl. Output Grid
67	220KΩ	¼	311050	BTS-220K	Red-Red-Yl. Output Grid
68	18Ω	2	394140	BW-2-180	Br.-Gray-Br. Output Cathode
69	470Ω	¼	320410	BTS-470	Yl.-Vl.-Br. Feedback
70	18Ω	½	310070	BW-½-18	Br.-Gray-Blk. AF Cathode

FILTER CHOKE

ITEM NO.	RATINGS			REPLACEMENT DATA			INSTALLATION NOTES
	TOTAL DIRECT CURRENT	D. C. RESISTANCE	INDUCTANCE @ CURRENT 1000∿	EMERSON PART NO.	STANCOR PART NO.	THORDARSON PART NO.	
71	.05A	430Ω	12 Henries	737030	C-1002*	T20C53*	*Drill new mounting holes.

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA			INSTALLATION NOTES
	PRI.	SEC. 1	SEC. 2	SEC. 3	EMERSON PART No.	STANCOR PART No.	THORDARSON PART No.	
72	117V AC @ .85A	600V CT @.124A	5.2V AC @ 2.8A	6.3V AC @ 3.5A	730000	P-6313†	T22R05†	†Use universal mounting brackets.

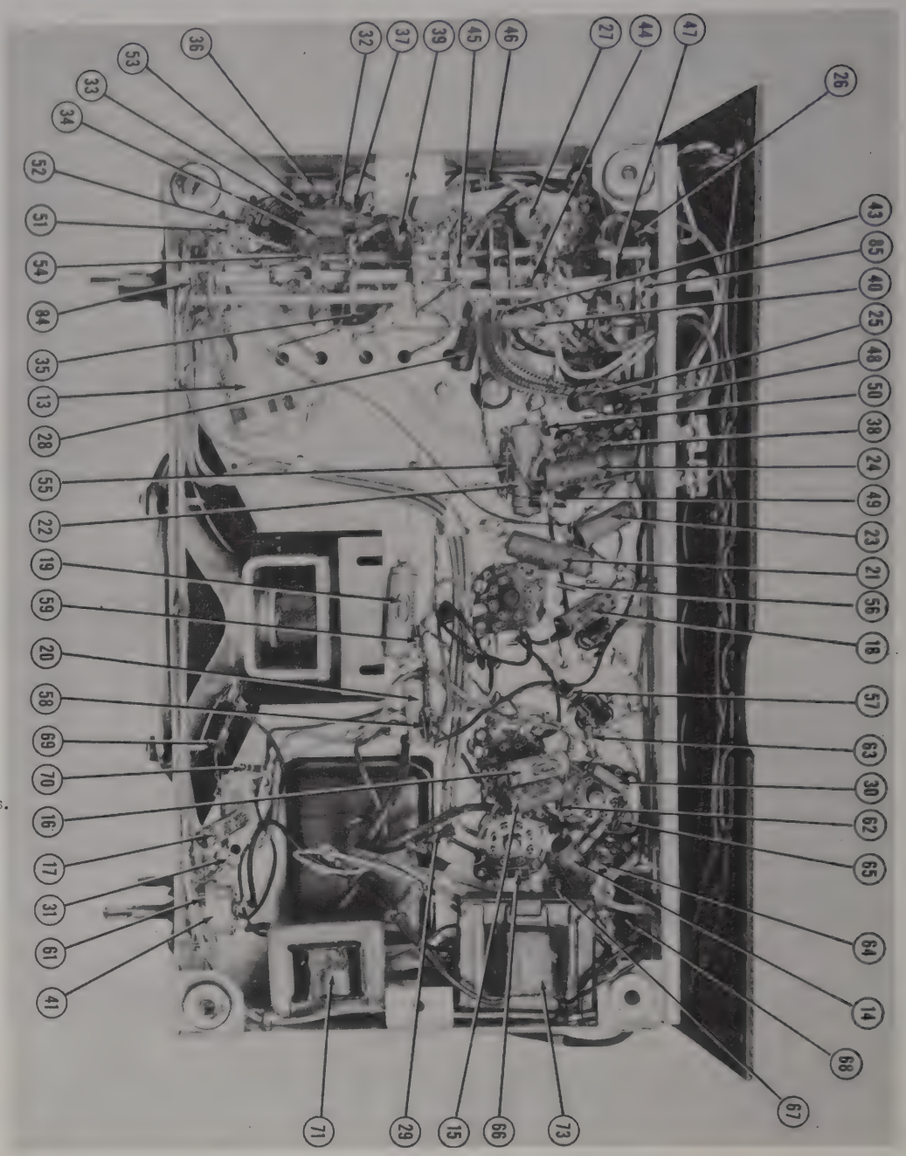
TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		EMERSON PART No.	STANCOR PART No.	THORDAR'N PART No.		
	PRI.	SEC.	PRI.	SEC.					
73	9500Ω CT	3.1Ω	550Ω CT	.55Ω	734160	A-3824	T22S56		

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			EMERSON PART No.	JENSEN PART No.		
74	FIELD	VC IMP.	180016	ST-110‡ Mod. P6-V		‡Drill and tap magnet frame.
	PM	3.1Ω				
75	CONE DIA.	VC DIA.	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.			
	6"	5/8"				

CHASSIS—BOTTOM VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	EMERSON PART No.	MEISSNER PART No.	
	Band					
76A	Loop Ant. 2	0Ω	0Ω	700110		76A, 76B, 76C in same can.
B	" " 3		0Ω			
C	" " 4		0Ω			
77A	Ant. Coil 1		4.5Ω	710020		77A, 77B, 77C in same can.
B	" " 3	.5Ω	.4Ω			
C	" " 4	.5Ω	0Ω			
78A	RF Coil 1	90Ω	4Ω	713010		78A, 78B, 78C, 78D in same can.
B	" " 2	14Ω	1.5Ω			
C	" " 3	6Ω	.4Ω			
D	" " 4	2Ω	.1Ω			
79A	Osc. Coil 1	2Ω	4Ω	716110		79A, 79B, 79C, 79D in same can.
B	" " 2	.6Ω	1Ω			
C	" " 3	.2Ω	.3Ω			
D	" " 4	.1Ω	.1Ω			
80	Input IF	11.5Ω	11.5Ω	720330	16-6658	
81	Output IF	12Ω		720340	16-6670	

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					EMERSON PART No.		
82	Bayonet	6-8	0.25	Blue	807020		Type 44
83	"	6-8	0.25	"	"		" "

MISCELLANEOUS

ITEM No.	PART NAME	EMERSON PART No.	NOTES
84	Bandswitch	510280	7 Wafer-5 Position
85	Antenna Switch	510290	3 PDT
86	Tuning Cap.	900200	(13-228 MMF, 13-277MMF) each section

VOLTAGE READINGS

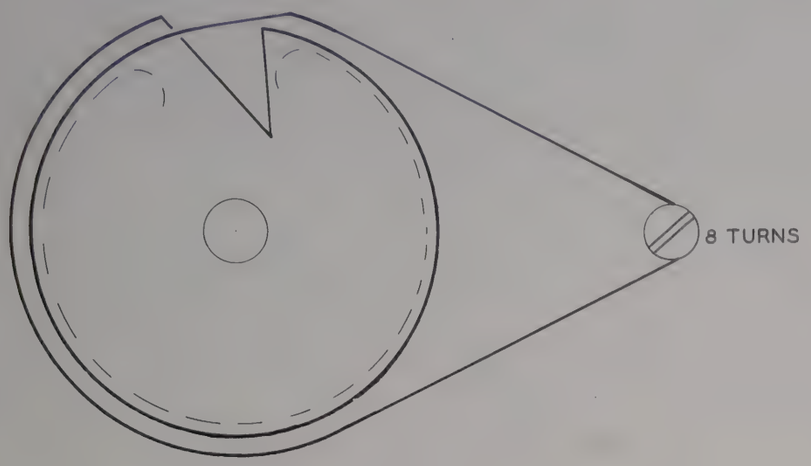
Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SG7	0V.	0V.	1.5V.DC	-13V.DC	1.5V.DC	155V.DC	6.3V.AC	300V.DC
2	6SA7	0V.	0V.	300V.DC	95V.DC	-18V.DC	3.1V.DC	6.3V.AC	-13V.DC
3	6J5	0V.	0V.	248V.DC	0V.	-18V.DC	0V.	6.3V.AC	0V.
4	6SG7	0V.	0V.	1.5V.DC	0V.	1.5V.DC	124V.DC	6.3V.AC	248V.DC
6	6H6	0V.	0V.	-54V.DC	0V.	0V.	0V.	6.3V.AC	0V.
7	6SL7GT	-54V.DC	82V.DC	0V.	-54V.DC	105V.DC	0V.	6.3V.AC	0V.
8	6V6GT	0V.	0V.	308V.DC	300V.DC	0V.	0V.	6.3V.AC	16.4V.DC
9	6V6GT	0V.	0V.	308V.DC	300V.DC	-11V.DC	-54V.DC	6.3V.AC	16.4V.DC
10	5U4G	320VDC	320VDC	0V	292VAC	300V.DC	285VAC	0V.	320V.DC

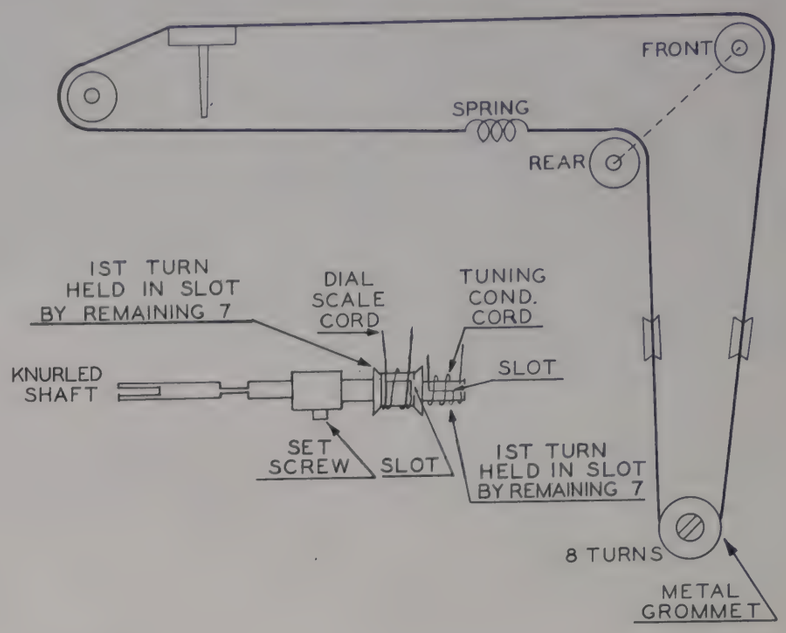
RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SG7	0Ω	0Ω	120Ω	1.5MEG.	120Ω	150KΩ	.1Ω	90KΩ
2	6SA7	0Ω	0Ω	90KΩ	112KΩ	20KΩ	220Ω	.1Ω	1.5MEG.
3	6J5	0Ω	0Ω	90KΩ	INF.	20KΩ	0Ω	.1Ω	1.8Ω
4	6SG7	0Ω	0Ω	120Ω	10Ω	120Ω	148KΩ	.1Ω	90KΩ
6	6H6	0Ω	0Ω	440KΩ	0Ω	0Ω	390KΩ	.1Ω	0Ω
7	6SL7GT	190KΩ	320KΩ	0Ω	10MEG.	320KΩ	15Ω	.1Ω	0Ω
8	6V6GT	0Ω	0Ω	90KΩ	90KΩ	400KΩ	400KΩ	.1Ω	160Ω
9	6V6GT	0Ω	0Ω	90KΩ	90KΩ	400KΩ	190KΩ	.1Ω	160Ω
10	5U4G	90KΩ	90KΩ	INF.	41Ω	90KΩ	45Ω	INF.	90KΩ

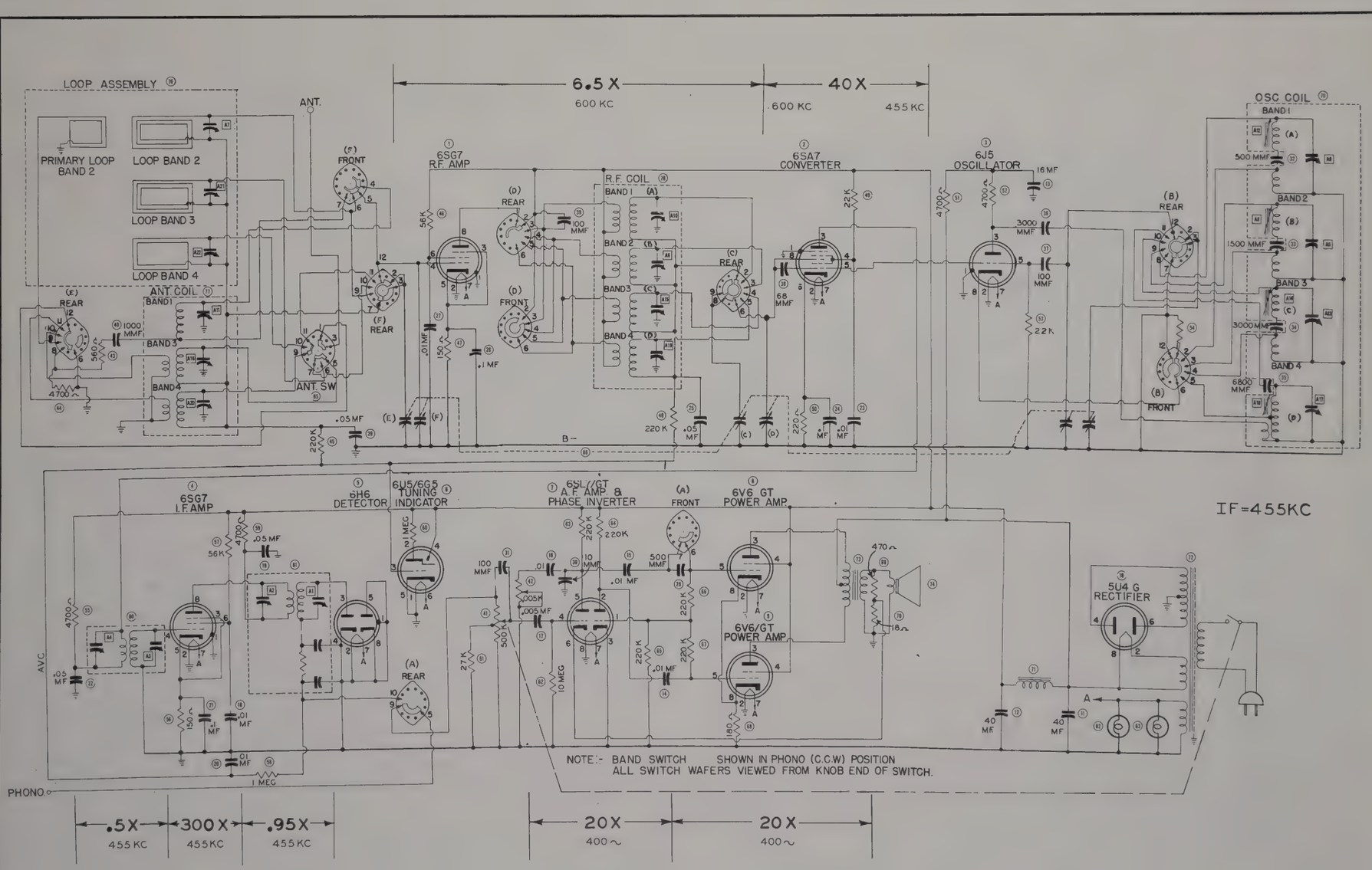
RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.





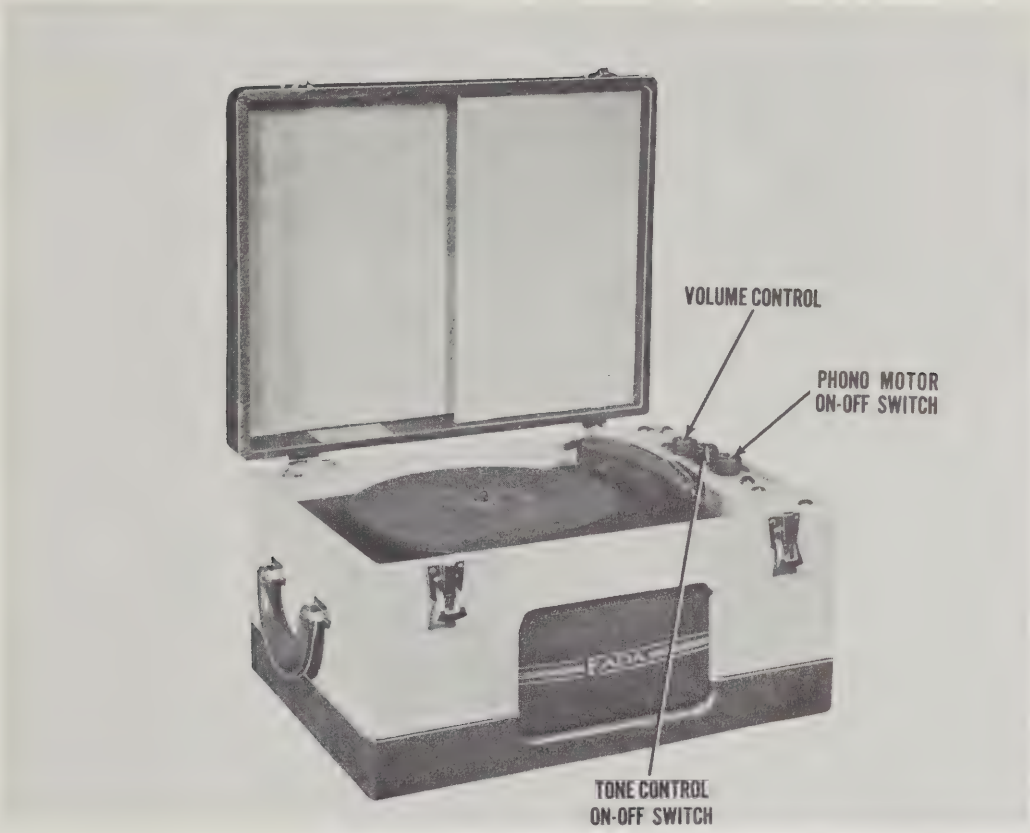
DIAL CORD DRIVES



THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

477-12

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.



FADA MODEL 633

TRADE NAME	Fada, Model 633
MANUFACTURER	Fada Radio & Electric Co., Inc., Long Island City, N.Y.
TYPE SET	AC Operated Portable Phonograph with 4 Tube Amplifier and Speaker
TUBES (FOUR)	Types, 12SL7GT/G Phase Inverter - AF Amp., (2) 35L6GT/G Power Output, 35Z5GT/G Rectifier.
POWER SUPPLY	105-120 Volts AC RATING .260 Amp. @ 117 Volts AC

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SL7GT/G	0V.	80V.DC	1.3V.DC	-.5V.DC	45V.DC	0V.	0V.	12V.AC
2	35L6GT/G	0V.	46V.AC	112V.DC	107V.DC	+18V.DC	0V.	12V.AC	6.2V.DC
3	35L6GT/G	0V.	46V.AC	112V.DC	107V.DC	+18V.DC	112V.DC	82V.AC	6.2V.DC
4	35Z5GT/G	0V.	117V.AC	113V.AC	0V.	113V.AC	117V.AC	87V.AC	117V.DC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SL7GT/G	500KΩ	120KΩ	4700Ω	105KΩ	140KΩ	0Ω	0Ω	12Ω
2	35L6GT/G	0Ω	41Ω	25KΩ	25KΩ	210KΩ	22Ω	12Ω	90Ω
3	35L6GT/G	INF.	41Ω	25KΩ	25KΩ	210KΩ	25KΩ	70Ω	90Ω
4	35Z5GT/G	INF.	120Ω	117Ω	INF.	117Ω	120Ω	97Ω	25KΩ

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

1 - DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1000 ohms per volt.
2 - Socket connections are shown as bottom views.
3 - Measured values are from socket pin to common negative.
4.- Line voltage maintained at 117 volts for voltage readings.
5 - Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6 - Volume control at maximum, no signal applied for voltage measurements.

HOWARD W. SAMS & CO., INC. **Indianapolis Indiana**

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed."
"Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1947 by Howard W. Sams & Co., Inc., Indianapolis, Indiana, U. S. A. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc."

PARTS LIST AND DESCRIPTIONS

FADA MODEL 683

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: FADA PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	Phase Inv.-AF	12SL7GT/G	12SL7GT/G	8BD	
2	Power Output	35L6GT/G	35L6GT/G	7AC	
3	"	35L6GT/G	35L6GT/G	7AC	
4	Rectifier	35Z5GT/G	35Z5GT/G	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: FADA PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
5A	30	150	22.10	PRSA150-40-30	EZ42215	TN129	DSB-403020-150	TA-430	Filter - Red
B	40	150							" - Blue
C	20	150		PRS150-20				UT-201	" - Yellow
6A	25	25		PRS25-25	BRD202A	TCD26	M-25-25	TA-25	Cath. Bypass
B	25	25		PRS25-25			M-25-25	TA-25	" "
7	.05	400	12.12	484-05	DT4S5	TP426	S-4-05	TC-15	Line Filter
8	.03	400	12.9	484-03	DT4S3	TP424	S-4-03	TC-13	Output Plate Bypass
9	.005	600	12.4	684-005	DT6D5	TP408	S-6-005	TC-25	Audio Coupling
10	.005	600	12.4	684-005	DT6D5	TP408	S-6-005	TC-25	" "
11	.005	600	12.4	684-005	DT6D5	TP408	S-6-005	TC-25	Tone Compensation
12	.25	400	12.17	484-.25	DT4P25	TP430	S-4-25	TC-2	Line Isolation *

*Used in Underwriters approved sets only.

CONTROLS

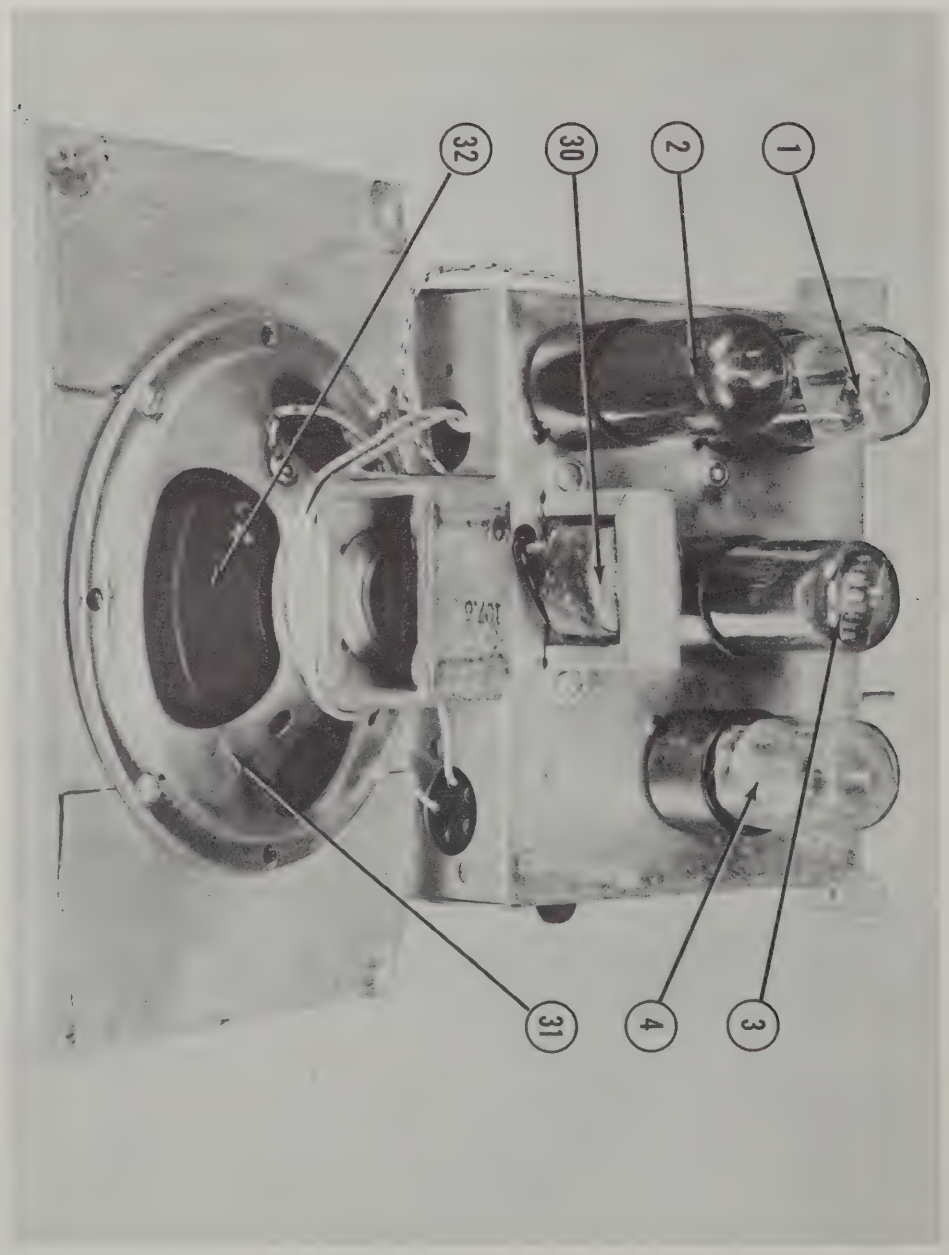
ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: FADA PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
13A	500KΩ	1	52.7	MR48	D13-133	M-60-Z	Volume Control
B	Shaft		Not Req.	Not Req.	A	Not Req.	Attach to 13A per instructions
14A	500KΩ	1	57.1	MR48	D13-133	M-60-Z	Tone Control
B	Shaft		Not Req.	Not Req.	A	Not Req.	Attach to 14A per instructions
C	Switch		" "	M26	41	SW-A	" " " " "

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: FADA PART No.	IRC PART No.	IDENTIFICATION CODES
15	220KΩ	½	32.18	BTS-220K	Red-Red-Yl. Phono Shunt
16	220KΩ	½	32.18	BTS-220K	Red-Red-Yl. Line Isolating-See Note 1
17	27Ω	½	32.49	BW-½-27	Red-Vi.-Blk. Feedback
18	270Ω	½	32.50	BW-½-270	Red-Vi.-Br. "
19	4700Ω	½	32.9	BTS-4700	Yl.-Vi.-Red AF Cathode
20	100KΩ	½	32.17	BTS-100K	Br.-Blk.-Yl. AF Plate Load
21	100KΩ	½	32.17	BTS-100K	Br.-Blk.-Yl. Phase Inverter Plate Load
22	100KΩ	½	32.17	BTS-100K	Br.-Blk.-Yl. Phase Inverter Grid
23	100KΩ	½	32.17	BTS-100K	Br.-Blk.-Yl. Output Grid
24	100KΩ	½	32.17	BTS-100K	Br.-Blk.-Yl. Output Grid
25	100Ω	½	32.53	BW-½-100	Br.-Blk.-Br. Output Cathode
26	200Ω	1	32.27	BW-1-220	Red-Blk.-Br. Filter
27	1200Ω	1	32.29	BTA-1200	Br.-Red-Red Filter
28	150Ω	½	32.4	BW-½-150	Br.-Grn.-Br. Pilot Light Shunt
29	30Ω	1	117.1	BW-1-33	Or.-Blk.-Blk. Line Dropping

Note 1 - Not used in all models.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		FADA PART No.	STANCOR PART No.	THORDAR'N PART No.		
	PRI.	SEC.	PRI.	SEC.					
30	4700Ω CT	3.1Ω	240Ω CT	.9Ω	42.4	A-3856	T22S46		

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			FADA PART No.	JENSEN PART No.		
31	FIELD PM	VC IMP. 3.1Ω	107.6	ST-105 Mod. P5-X		
32	CONE DIA. 4-3/4"	VC DIA. 1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.			

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					FADA PART No.		
33	Bayonet	6-8	0.15	Brown	122.1		Type 47

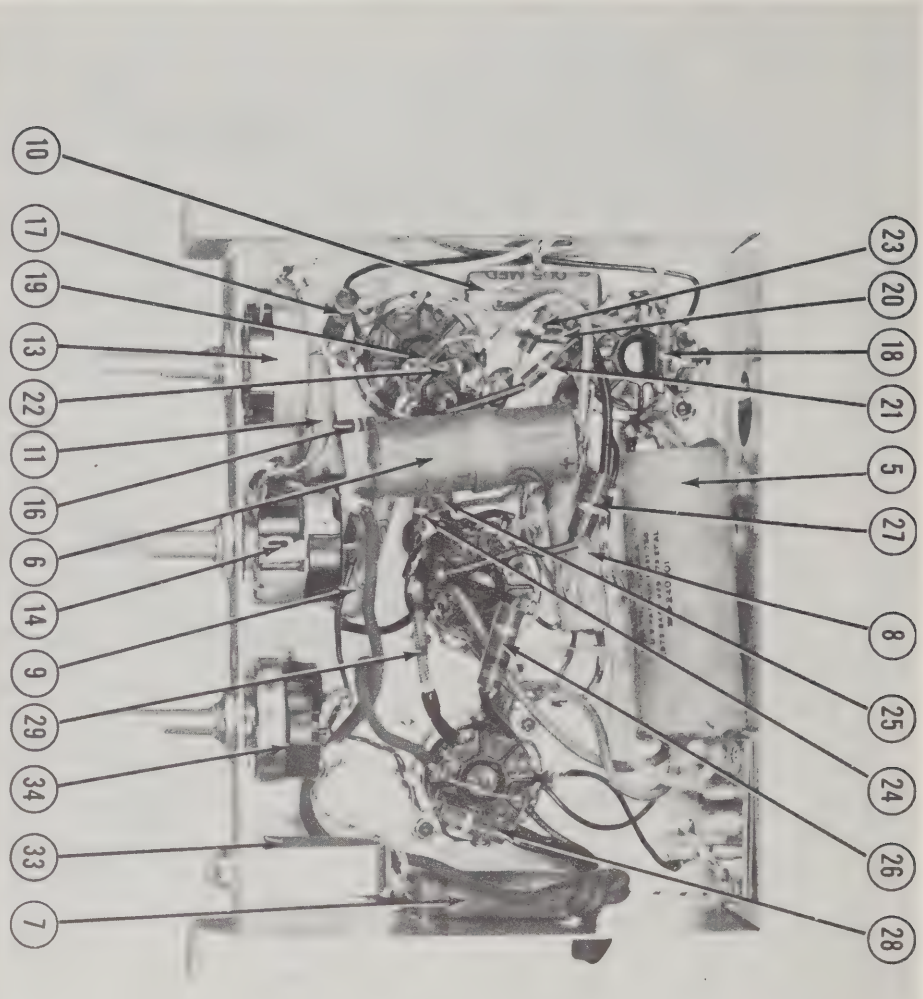
MISCELLANEOUS

ITEM No.	PART NAME	FADA PART No.	NOTES
34	Switch	47.3	Motor On-Off

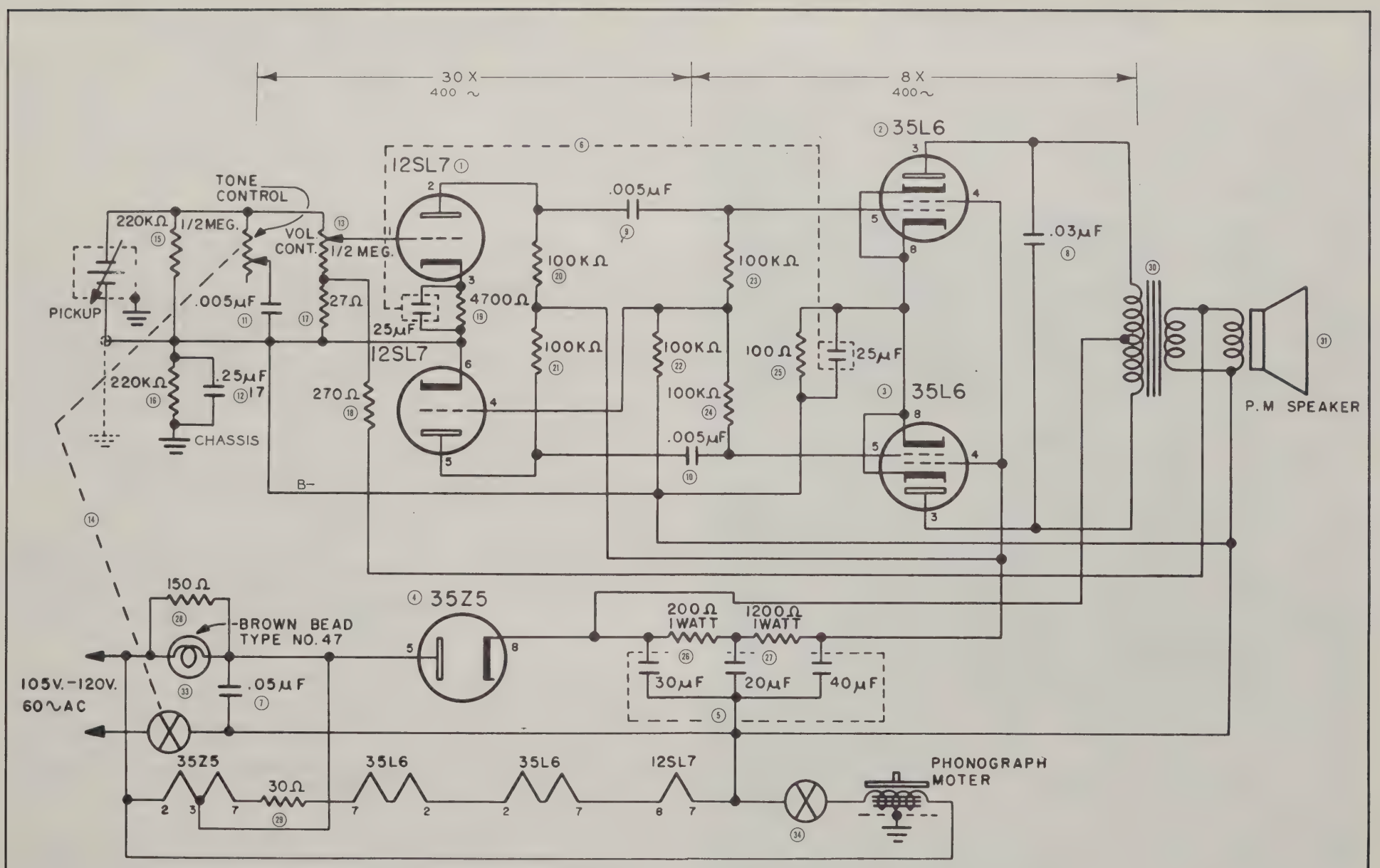
DISASSEMBLY INSTRUCTIONS

1. Remove three push-on type control knobs from cabinet.
2. Remove six Phillips head screws holding top mounting board. Lift up complete assembly.
3. Unsolder phono-motor leads.
4. Unsolder phono-pickup leads.
5. Unsolder lead from phono frame to chassis.
6. Remove two Phillips head screws holding chassis.
7. Remove four screws holding speaker. Remove chassis and speaker.

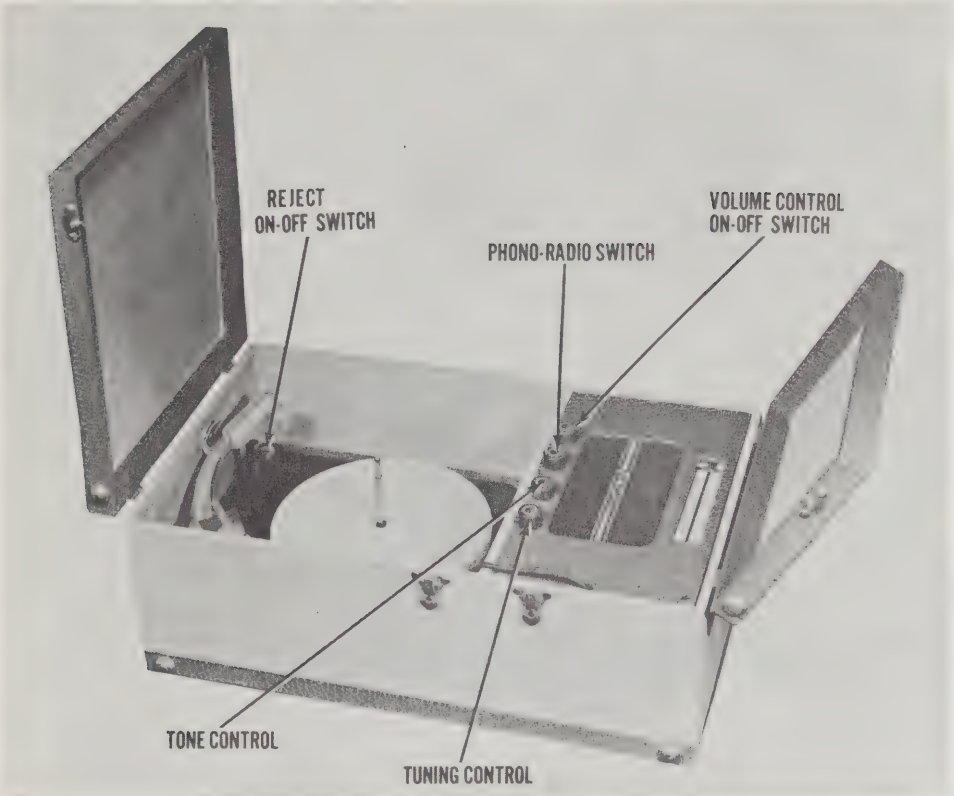
CHASSIS—BOTTOM VIEW



FADA MODEL 633



THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE



FADA
MODEL 637

FADA
MODEL 637

FADA MODEL 637

TRADE NAME	Fada, Model 637
MANUFACTURER	Fada Radio & Electric Co., Inc., Long Island City, N.Y.
TYPE SET	AC Operated Portable Phono-Radio Combination Superheterodyne-Loop Antenna
TUBES (SIX)	Types, 12BA6 RF Amp., 12SA7GT Converter, 12SK7GT IF Amp., 12SQ7 Det.-AVC-AF, 35L6GT/G Power Output, 35Z5GT/G Rectifier.
POWER SUPPLY	110-120 Volts AC
TUNING RANGE—BROADCAST	528-1680KC RATING .230 Amp. @ 117 Volts AC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use isolation transformer if available. If not, connect a capacitor in series with low side of signal generator and chassis. Volume control at maximum position. Output of signal generator should be no higher than necessary to obtain output reading. Use an insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD.	High side to rear stator of tuning cap. Low side to chassis.	455KC	Tuning cap. fully open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If isolation transformer is not used, reduce dummy antenna to .001 MFD. to reduce hum modulation.
.1 MFD.	"	"	Tuning cap. fully closed.	"	A5	Adjust for minimum output.
.1 MFD.	"	1680KC	Tuning cap. fully open.	"	A6	Adjust for maximum output.
	Loop	1500KC	Tune for maximum output.	"	A7	Fashion loop of several turns of wire and radiate signal into receiver loop. Adjust for maximum output.

HOWARD W. SAMS & CO., INC. Indianapolis, Indiana

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed."
"Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1947 by Howard W. Sams & Co., Inc., Indianapolis, Indiana, U. S. A. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc."

PARTS LIST AND DESCRIPTIONS

FADA MODEL 637

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: FADA PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	RF Amp.	12BA6	12BA6	7CC	
2	Converter	12SA7GT	12SA7GT	8AD	
3	IF Amp.	12SK7GT	12SK7GT	8N	
4	Det.-AVC-AF	12SQ7	12SQ7	8Q	
5	Power Output	35L6GT/G	35L6GT/G	7AC	
6	Rectifier	35Z5GT/G	35Z5GT/G	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: FADA PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
7A	30	150	22.4	PRSA150-40-30	EZ42215	TN129	DSB-403020-150	TA-430	Filter - Red
B	40	150							" - Blue
C	20	150		PRS150-20				UT-201	" - Green
8	.05	400	12.12	484-05	DT4S5	TP426	S-4-05	TC-15	Line Filter
9	.03	400	12.9	484-03	DT4S3	TP424	S-6-03	TC-13	Output Plate Bypass
10	.005	600	12.4	684-005	DT6D5	TP408	S-6-005	TC-25	Tone Compensation
11	.01	600	12.6	684-01	DT6S1	TP410	S-6-01	TC-11	Audio Coupling
12	.005	600	12.4	684-005	DT6D5	TP408	S-6-005	TC-25	" "
13	.005	600	12.4	684-005	DT6D5	TP408	S-6-005	TC-25	Tone Compensation
14	.05	200	12.11	484-05	DT4S5	TP426	S-4-05	TC-15	IF Cath. Bypass
15	.05	200	12.11	484-05	DT4S5	TP426	S-4-05	TC-15	RF Bypass Pwr. Supp.
16	.05	400	12.12	484-05	DT4S5	TP426	S-4-05	TC-15	Phono Isolation
17	.05	200	12.11	484-05	DT4S5	TP426	S-4-05	TC-15	AVC Filter
18	250	500	17.8	1468-00025	5W5T25	MC240	MO.5-325	1FM-325	Audio Plate Bypass
19	220	500	17.19	1468-0002	5W5Q2	MC237	MO.5-322	1FM-32	IF Bypass Vol. Cont.
20	100	500	17.5	1468-0001	5W5T1	MC235	MO.5-31	1FM-31	Osc. Grid Capacitor
21	100	500	17.5	1468-0001	5W5T1	MC235	MO.5-31	1FM-31	RF Coupling

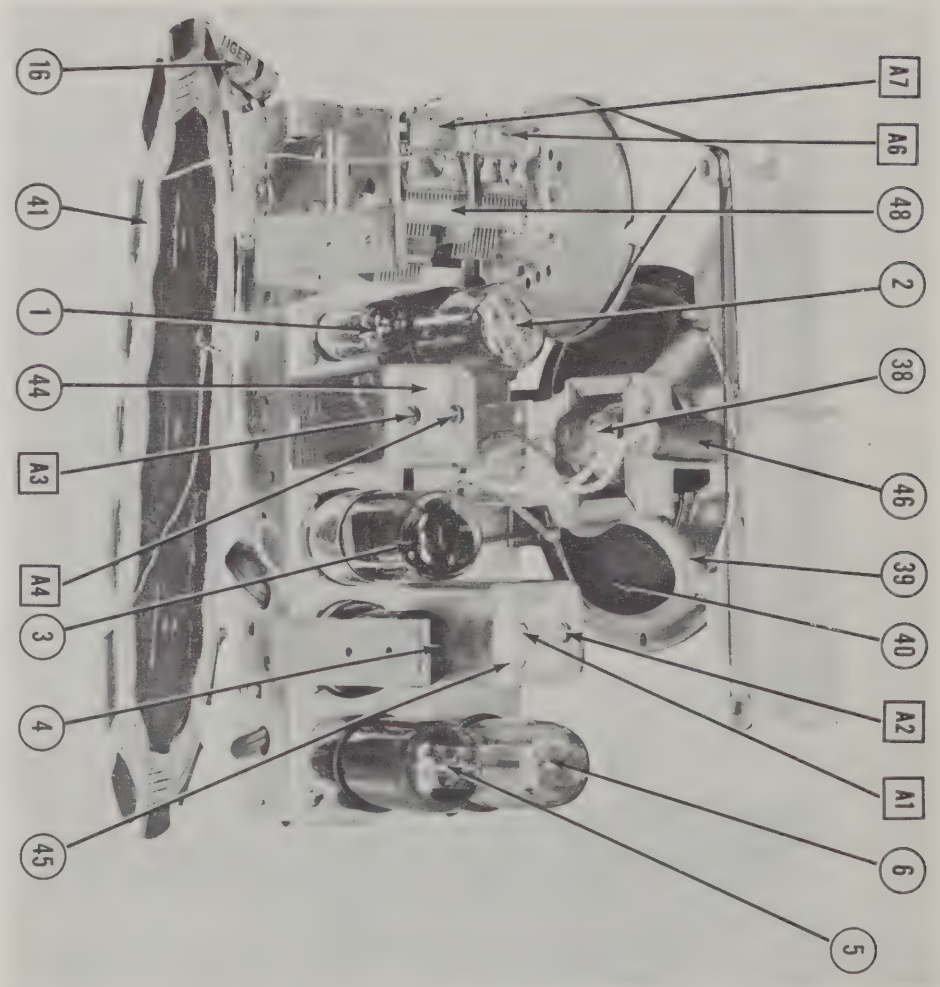
CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: FADA PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
22A	500KΩ	1	52.2A	MR48	D13-133	M-60-Z	Volume Control
B	Shaft		Not Req.	Not Req.	A	Not Req.	Attach to 22A per instructions
C	Switch		" "	M26	41	SW-A	" " " " "
23A	50CKΩ	1	57.2	MR48	D13-133	M-60-Z	Tone Control
B	Shaft		Not Req.	Not Req.	A	Not Req.	Attach to 23A per instructions

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: FADA PART No.	IRC PART No.	IDENTIFICATION CODES
24	33Ω	½	32.43	BW-½-33	Or.-Or.-Blk. RF Cathode
25	4700Ω	½	32.9	BTS-4700	Yl.-Vi.-Red RF Plate Load
26	100KΩ	½	32.17	BTS-100K	Br.-Blk.-Yl. Converter Grid
27	22KΩ	½	32.13	BTS-22K	Red-Red-Or. Oscillator Grid
28	220Ω	½	32.5	BW-½-220	Red-Red-Br. IF Cathode
29	1 Meg.	½	32.23	BTS-1 Meg.	Br.-Blk.-Grn. AVC Network
30	3.9 Meg.	½	32.26	BTS-3.9 Meg.	Or.-White-Grn. AF Grid
31	220KΩ	½	32.18	BTS-220K	Red-Red-Yl. AF Plate Load
32	470KΩ	½	32.20	BTS-470K	Yl.-Vi.-Yl. Output Grid
33	130Ω	½	32.3	BW-½-120	Br.-Or.-Br. Output Cathode
34	220KΩ	½	32.18	BTS-220K	Red-Red-Yl. Phono Shunt
35	910Ω	1	32.28	BTA-910	White-Br.-Br. Filter
36	200Ω	1	32.27	BW-1-220	Red-Blk.-Br. Filter
37	30Ω	1	117.1	BW-1-33	Or.-Blk.-Blk. Line Dropping

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		FADA PART No.	STANCOR PART No.	THORDAR'N PART No.		
	PRI.	SEC.	PRI.	SEC.					
38	1830Ω	2.9Ω	190Ω	.69Ω	42.1	A-3876*	T22S45*		*Bend mounting tabs down, file out slots and mount on original bracket.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			FADA PART No.	JENSEN PART No.		
39	FIELD / PM	VC IMP. / 2.9Ω	107.9	ST-10S† Mod. P5-X		†Fabricate new mounting bracket.
40	CONE DIA. 4-3/4"	VC DIA. 1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.			

R F COILS

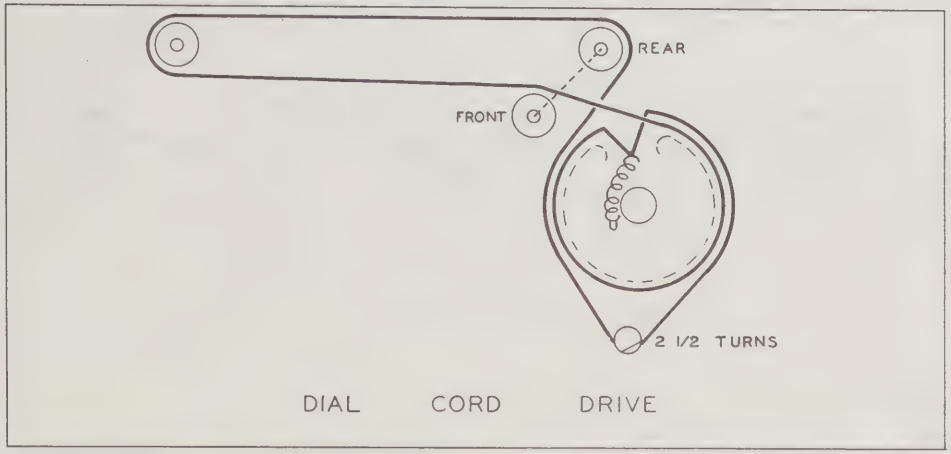
ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	FADA PART No.	MEISSNER PART No.	
41	Loop Ant.		1.2Ω	37.9		
42	Osc. Coil	.5Ω	5Ω	37.1	14-1040	
43	Wave Trap		52Ω	37.5		
44	Input IF	20Ω	20Ω	37.3	16-6658	
45	Output IF	23Ω	23Ω	37.33X	16-6660	

DIAL LIGHT

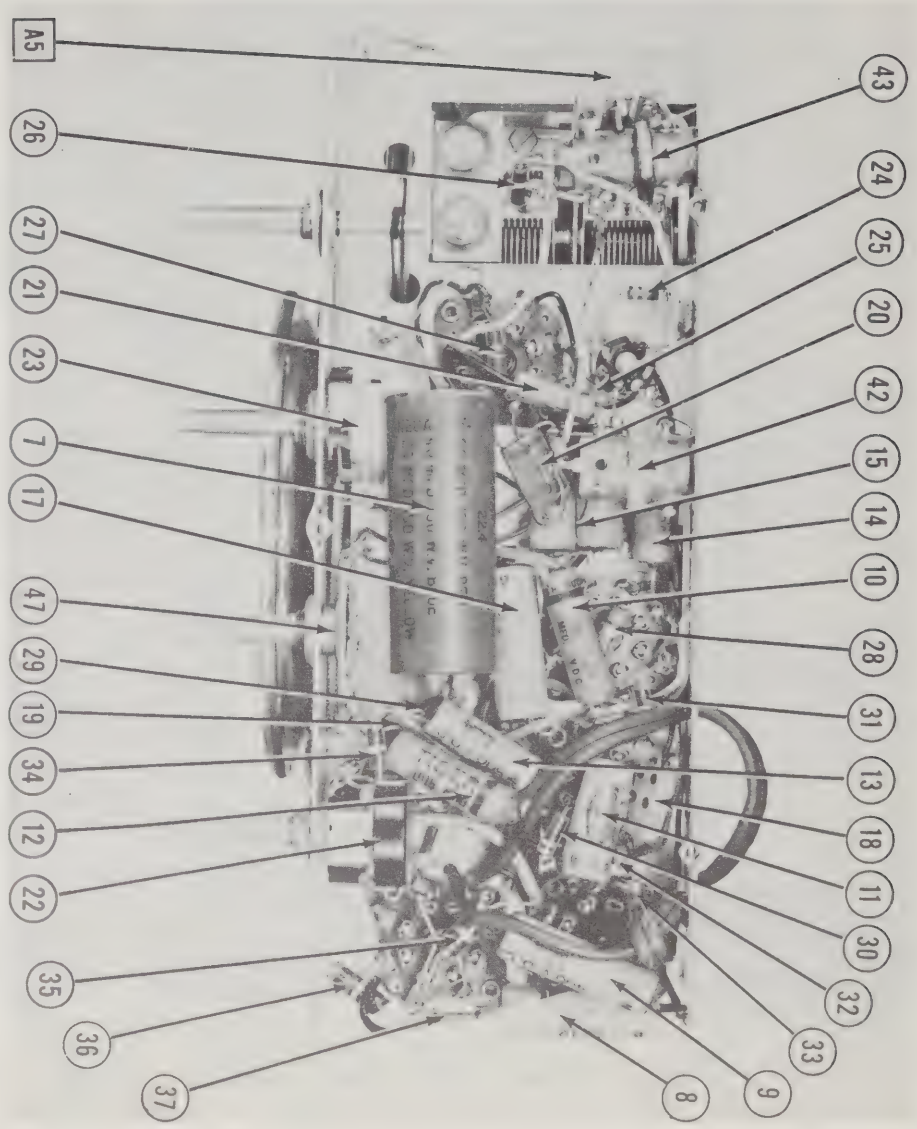
ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					FADA PART No.		
46	Bayonet	6-8	0.15	Brown	122.1		Type 47

MISCELLANEOUS

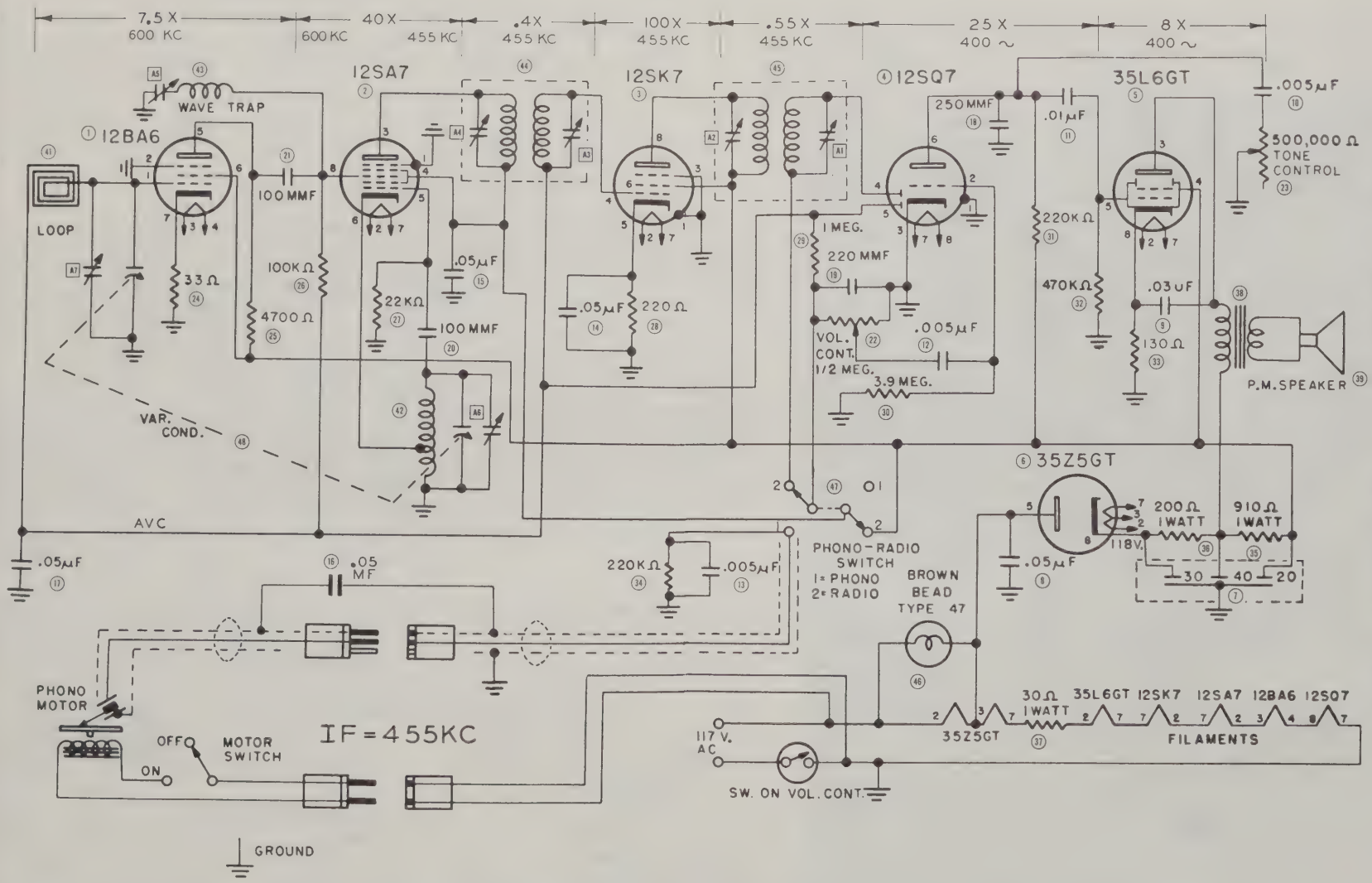
ITEM No.	PART NAME	FADA PART No.	NOTES
47	Switch		Radio-Phono
48	2 Gang Var. Cap	27-3	(23-404 MMF), (33-213MMF)



CHASSIS—BOTTOM VIEW



FADA MODEL 637



Pin No	12BA6 Volt	12BA6 Res	12SA7GT Volt	12SA7GT Res
1	-3V.DC	1.3MEG.	0V.	0Ω
2	0V.	0Ω	26V.AC	23Ω
3	117V.AC	11Ω	82V.AC	40KΩ
4	26V.AC	23Ω	82V.AC	40KΩ
5	40V.DC	45KΩ	-7V.DC	22KΩ
6	82V.DC	40KΩ	0V.	.5Ω
7	.4V.DC	30Ω	34V.AC	32Ω
8			-25V.DC	1.3MEG.

Pin No	12SK7GT Volt	12SK7GT Res	12SQ7 Volt	12SQ7 Res
1	0V.	0Ω	0V.	0Ω
2	34V.AC	32Ω	-.5V.DC	3.8MEG
3	0V.	0Ω	0V.	0Ω
4	-3V.DC	1.3MEG.	-3V.DC	490KΩ
5	1.7V.DC	200Ω	-3V.DC	1.3MEG.
6	82V.DC	40KΩ	62V.DC	250KΩ
7	45V.AC	42Ω	0V.	0Ω
8	82V.DC	40KΩ	117V.AC	11Ω

Pin No.	35L6GT/G Volt	35L6GT/G Res	35Z5GT/G Volt	35Z5GT/G Res
1	0V.	INF.	110V.DC	40KΩ
2	82V.AC	75Ω	117V.AC	124Ω
3	105V.DC	40KΩ	113V.AC	120Ω
4	82V.DC	40KΩ	117V.DC	124Ω
5	0V.	450KΩ	113V.DC	120Ω
6	0V.	INF.	110V.DC	40KΩ
7	45V.AC	42Ω	87V.AC	100Ω
8	4V.DC	110Ω	122V.DC	40KΩ

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

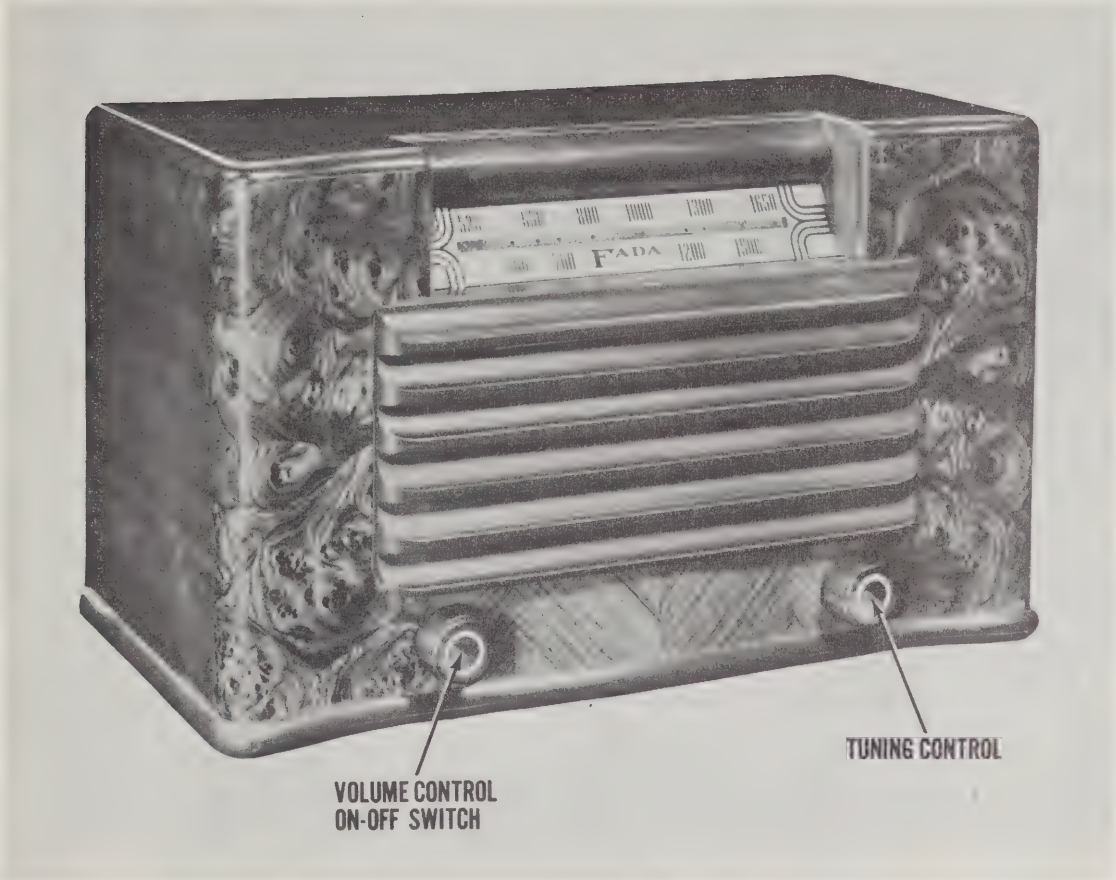
THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

477-14

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. **DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.**
2. **Socket connections are shown as bottom views.**
3. **Measured values are from socket pin to common negative.**
4. **Line voltage maintained at 117 volts for voltage readings.**
5. **Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.**
6. **Volume control at maximum, no signal applied for voltage measurements.**

FADA
MODEL 1001



FADA
MODEL 1001

FADA MODEL 1001

TRADE NAME	Fada, Model 1001
MANUFACTURER	Fada Radio & Elect. Co., Inc., Long Island City, N.Y.
TYPE SET	AC-DC Operated Superheterodyne - Self Contained Loop Antenna
TUBES (SIX)	Types, 12BA6 RF Amp., 12SA7GT Converter, 12SK7GT IF Amp., 12SQ7 Det.-AVC-AF, 35L6GT Power Output, 35Z5GT Rectifier.
POWER SUPPLY	
TUNING RANGE—BROADCAST	

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use isolation transformer if available. If not, connect a capacitor in series with low side of signal generator and chassis. Volume control at maximum position. Output of signal generator should be no higher than necessary to obtain output reading. Use an insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD.	High side to rear stator of tuning cap. Low side to chassis.	456KC	Tuning cap. fully open.	Across voice coil	A1, A2, A3, A4.	Adjust for maximum output. If isolation transformer is not used, reduce dummy ant. to .001 MFD to reduce hum modulation.
.1 MFD.	"	"	"	"	A5	Adjust for minimum output.
	Loop	1680KC	"	"	A6	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
	"	1400KC	Tune for maximum output.	"	A7	Adjust for maximum output.

HOWARD W. SAMS & CO., INC. **Indianapolis Indiana**

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed." "Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1947 by Howard W. Sams & Co., Inc., Indianapolis, Indiana, U. S. A. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc."

PARTS LIST AND DESCRIPTIONS

FADA MODEL 1001

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: FADA PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	RF Amp.	12BA6	12BA6	7CC	
2	Converter	12SA7GT	12SA7GT	8AD	
3	IF Amp.	12SK7GT	12SK7GT	8N	
4	Det.-AVC-AF	12SQ7	12SQ7	8Q	
5	Power Output	35L6GT	35L6GT	7AC	
6	Rectifier	35Z5GT	35Z5GT	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: FADA PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
7A	30	150	22.4	PRSA150-40-30	EZ42215	FP357	DSB-403020-150	TA-430	Filter - Red
B	40	150						UT-201	" - Blue
C	20	150		PRS150-20					" - Yellow
8	.05	400	12.12	484-05	DT4S5	TP426	S-4-05	TC-15	Line Filter
9	.03	400	12.9	484-03	DT4S3	TP424	S-4-03	TC-13	Output Plate Bypass
10	.01	400	12.6	484-01	DT4S1	TP421	S-4-01	TC-11	Audio Coupling
11	.005	600	12.4	684-005	DT6D5	TP408	S-6-005	TC-25	" "
12	.05	200	12.11	484-05	DT4S5	TP426	S-4-05	TC-15	IF Cath. Bypass
13	.05	200	12.11	484-05	DT4S5	TP426	S-4-05	TC-15	RF Bypass Pwr. Supp.
14	.05	200	12.11	484-05	DT4S5	TP426	S-4-05	TC-15	AVC Filter
15	250	500	17.8	1468-00025	5W5T25	MC240	MO.5-325	1FM-325	Audio Plate Bypass
16	220	500	17.19	1468-0002	5W5T2	MC237	MO.5-322	1FM-32	IF Bypass Vol. Cont.
17	100	500	17.5	1468-0001	5W5T1	MC235	MO.5-31	1FM-31	Osc. Grid Capacitor
18	100	500	17.5	1468-0001	5W5T1	MC235	MO.5-31	1FM-31	RF Coupling

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: FADA PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
19A	500KΩ	1	52.2A	MR48	D13-133	M-60-Z	Volume Control
B	Shaft		Not Req.	Not Req.	A	Not Req.	Attach to 19A per instructions
C	Switch		" "	M26	41	SW-A	" " " " "

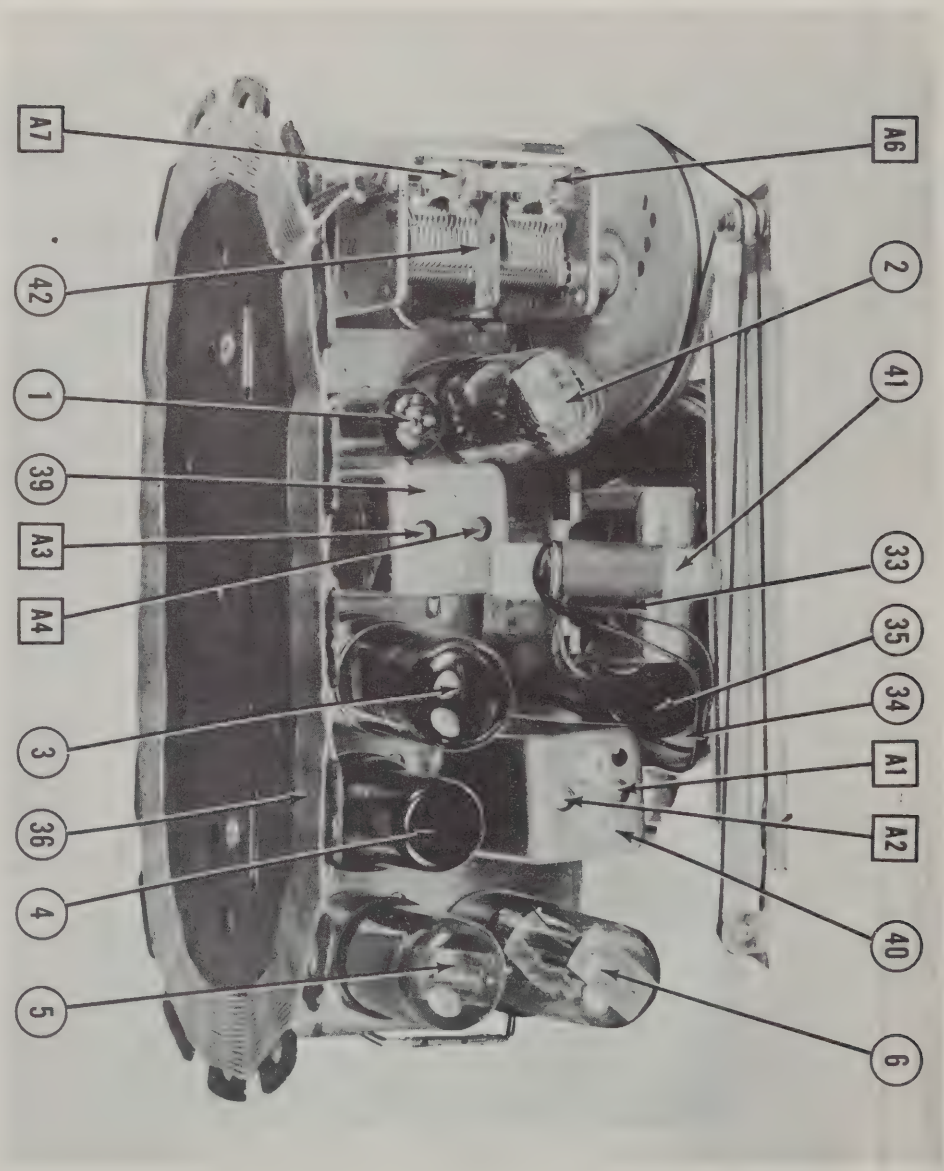
RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: FADA PART No.	IRC PART No.	IDENTIFICATION CODES
20	33Ω	½	32.43	BW-½-33	Or.-Or.-Blk. RF Cathode
21	4700Ω	½	32.9	BTS-4700	Yl.-Vi.-Red RF Plate Load
22	100KΩ	½	32.17	BTS-100K	Br.-Blk.-Yl. Converter Grid
23	22KΩ	½	32.13	BTS-22K	Red-Red-Or. Oscillator Grid
24	220Ω	½	32.5	BW-½-220	Red-Red-Br. IF Cathode
25	1 Meg.	½	32.23	BTS-1 Meg.	Br.-Blk.-Grn. AVC Network
26	3.9 Meg.	½	32.26	BTS-3.9 Meg.	Or.-White-Grn. AF Grid
27	220KΩ	½	32.18	BTS-220K	Red-Red-Yl. AF Plate Load
28	470KΩ	½	32.20	BTS-470K	Yl.-Vi.-Yl. Output Grid
29	130Ω	½	32.3	BW-½-150	Br.-Or.-Br. Output Cathode
30	200Ω	1	32.27	BW-1-220	Red-Blk.-Br. Filter
31	910Ω	1	32.28	BTA-910	White-Br.-Br. Filter
32	30Ω	1	117.1	BW-1-33	Or.-Blk.-Blk. Line Dropping

TRANSFORMER (OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: FADA PART No.	STANCOR PART No.	THORDAR'N PART No.		INSTALLATION NOTES
33	2150Ω	3.4Ω	190Ω	.69Ω	42.1	A-3876*	T22S45*		*Bend mounting tabs down, file out slots and mount on original bracket.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA FADA PART No.	JENSEN PART No.		INSTALLATION NOTES
	FIELD	VC IMP.		ST-113		
34	PM	3.4Ω	107.4	Mod. P4-X		
	CONE DIA.	VC DIA.				
35	4"	1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT			

R F COILS

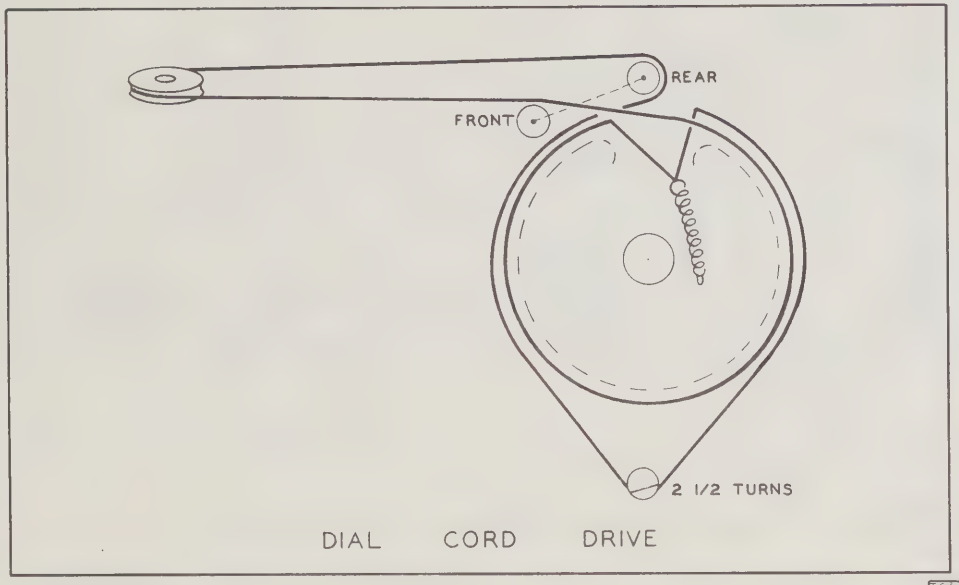
ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA FADA PART No.	MEISSNER PART No.	
36	Loop Ant.		1.2Ω	37.9		
37	Wave Trap		52Ω	37.5		
38	Osc. Coil		5.5Ω	37.1	14-1040	
39	Input IF	20Ω	20Ω	37.3	16-6658	
40	Output IF	26Ω	25Ω	37.33	16-6660	

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA FADA PART No.		INSTALLATION NOTES
41	Bayonet	6-8	0.15	Brown	122.1		Type 47

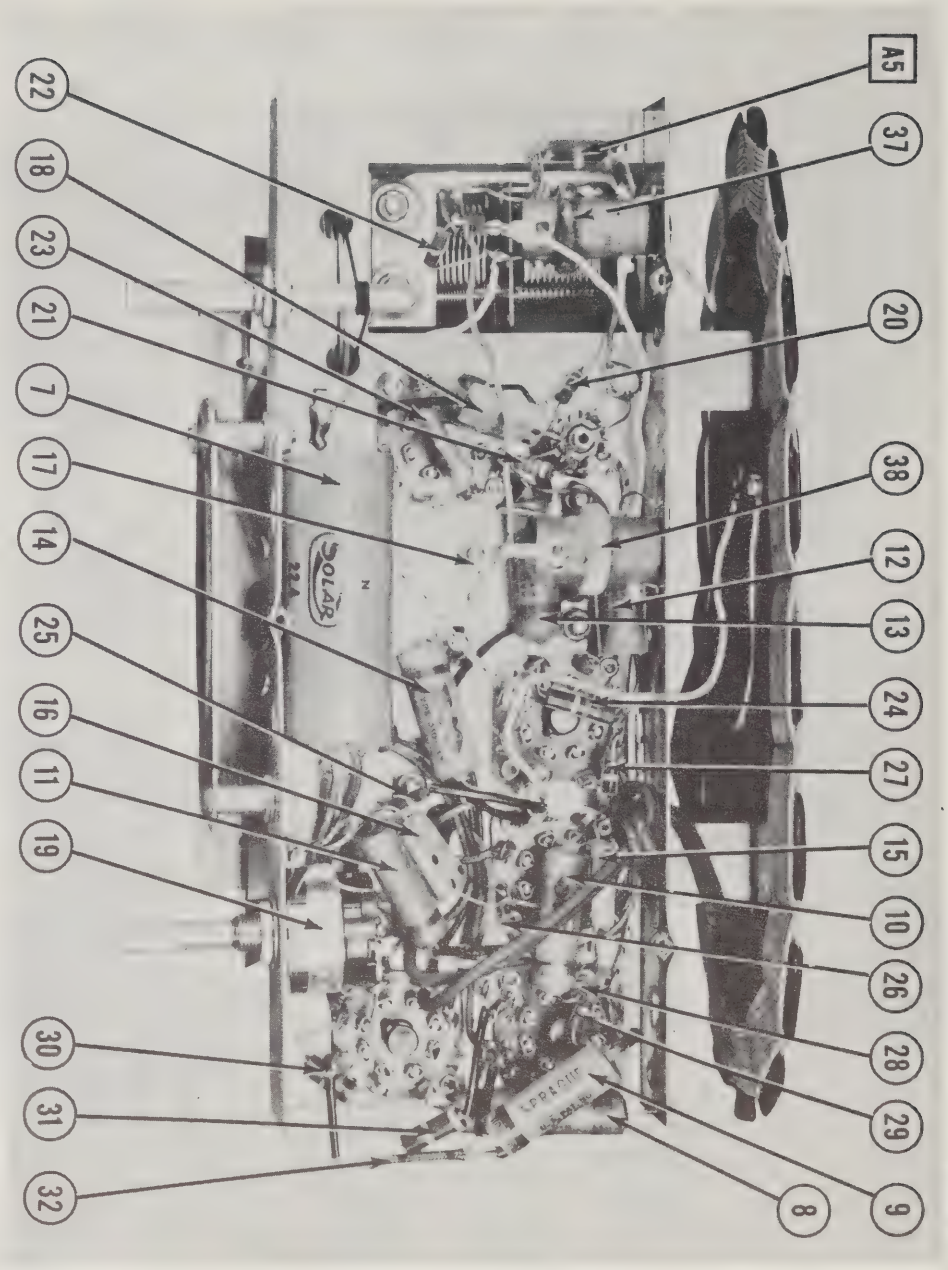
MISCELLANEOUS

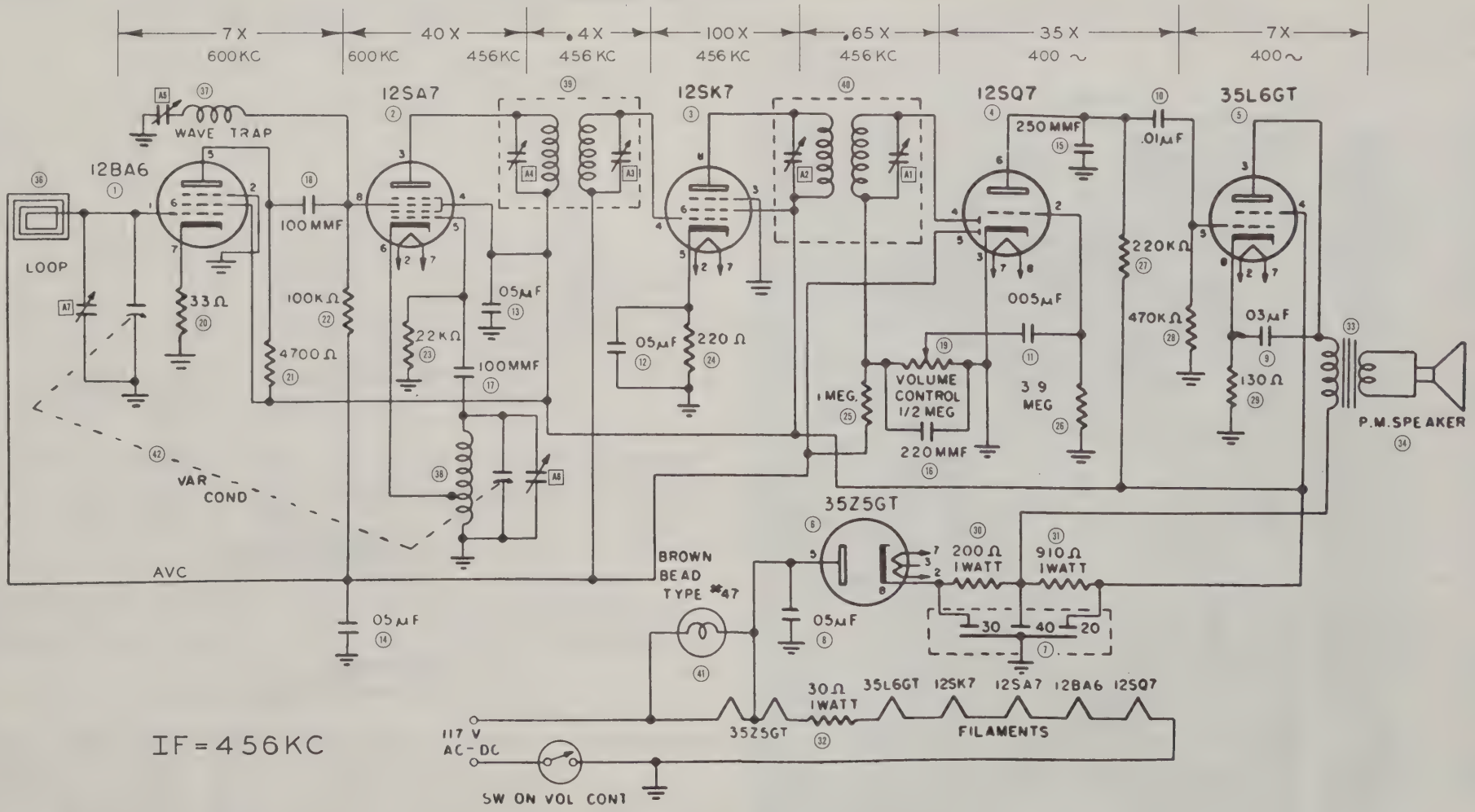
ITEM No.	PART NAME	FADA PART No.	NOTES
42	2 Gang Var. Cap	27.3	23-404 MMF, 33-213MMF



DIAL CORD DRIVE

CHASSIS—BOTTOM VIEW





VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12BA6	0V.	0V.	12V.AC	24V.AC	44V.DC	82V.DC	44V.DC	
2	12SA7GT	0V.	24V.AC	82V.DC	82V.DC	-6V.DC	0V.	36V.AC	-.05V.DC
3	12SK7GT	0V.	36V.AC	0V.	0V.	2V.DC	82V.DC	48V.AC	82V.DC
4	12SQ7	0V.	-.65V.DC	0V.	-.3V.DC	0V.	57V.DC	0V.	12V.AC
5	35L6GT	0V.	80V.AC	107V.DC	82V.DC	0V.	0V.	48V.AC	44V.DC
6	35Z5GT	112V.DC	117V.AC	113V.AC	0V.	113V.AC	112V.DC	85V.AC	125V.DC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12BA6	1.4 MEG.	0 Ω	1 Ω	24 Ω	115 KΩ	110 KΩ	30 Ω	
2	12SA7GT	0 Ω	24 Ω	110 KΩ	110 KΩ	20 KΩ	.5 Ω	32 Ω	1.4 MEG.
3	12SK7GT	0 Ω	32 Ω	0 Ω	1.4 MEG.	200 Ω	110 KΩ	42 Ω	110 KΩ
4	12SQ7	0 Ω	3.2 MEG.	0 Ω	500 KΩ	1.4 MEG.	340 KΩ	0 Ω	1 Ω
5	35L6GT	INF.	74 Ω	110 KΩ	110 KΩ	440 KΩ	INF.	42 Ω	120 Ω
6	35Z5GT	110 KΩ	125 Ω	120 Ω	INF.	120 Ω	110 KΩ	100 Ω	110 KΩ

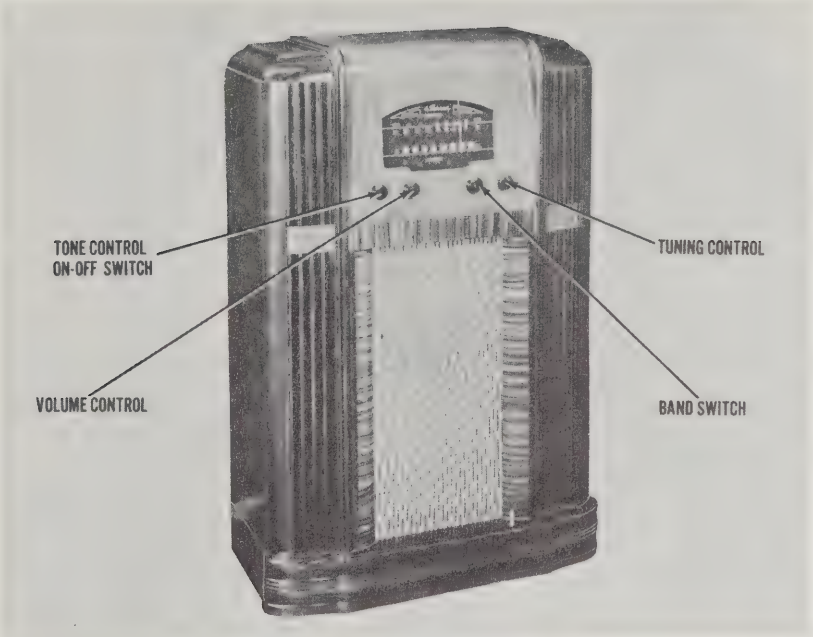
THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

477-15

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. **DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.**
2. **Socket connections are shown as bottom views.**
3. **Measured values are from socket pin to common negative.**
4. **Line voltage maintained at 117 volts for voltage readings.**
5. **Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.**
6. **Volume control at maximum, no signal applied for voltage measurements.**



FERRAR MODEL C-81-B

TRADE NAME	Ferrar, Model C-81-B
MANUFACTURER	Ferrar Radio & Television Corp., 55 West 26th St., New York 10, N.Y.
TYPE SET	AC-DC Operated 2 Band Superheterodyne Rcvr.-Self Contained Loop Antenna
TUBES (EIGHT)	Types, 14A7 RF Amp., 14Q7 Converter, 14R7 IF Amp. Det.-AVC, 12SL7GT Phase Inv.-AF, (2) 50L6GT Power Output, (2) 35Y4 Rectifier.
POWER SUPPLY	110-120 Volts AC — RATING .650 Amp. @ 117 Volts AC
TUNING RANGE—BROADCAST	540-1725KC — SHORT WAVE 5.7-21MC

ALIGNMENT INSTRUCTIONS--READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer turn tuning cap fully closed and set pointer 2-1/16" from left end of dial backplate. Use isolation transformer if available. If not, connect a capacitor in series with low side of signal generator and chassis. Volume control at maximum position. Output of signal generator should be no higher than necessary to obtain output reading. Use an insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD.	High side to rear stator of tuning cap. Low side to chassis.	456KC	BC	Tuning cap. fully open.	Across voice coil.	A1,A2, A3,A4.	Adjust for maximum output If isolation transformer is not used, reduce dummy ant. to .001 MFD. toreduce hum modulation.
400Ω	High side to ext. ant. lug. Low side to ext. ground lug.	16MC	SW	6-9/16" from left end of dial backplate.	"	A5	Adjust for maximum output
400Ω	"	"	"	Tune for maximum output.	"	A6,A7.	Rock tuning cap. and adjust for maximum output.
400Ω	"	10MC	"	4-15/16" from left end of dial backplate.	"	A8	Adjust for maximum output Repeat last three steps for optimum performance.
200MMFD	"	1600KC	BC	7-3/16" from left end of dial backplate.	"	A9	Adjust for maximum output
200MMFD	"	1450KC	"	Tune for maximum output.	"	A10,A11	" " " "
200MMFD	"	1000KC	"	5-1/8" from left end of dial backplate.	"	A12	" " " "
200MMFD	"	600KC	"	Tune for maximum output.	"	A13	Rock tuning cap and adjust for maximum. Repeat last four steps until no further increase in output is obtained.

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed."
"Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1947 by Howard W. Sams & Co., Inc., Indianapolis, Indiana, U. S. A. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc."

PARTS LIST AND DESCRIPTIONS

FERRAR
MODEL C-81-B

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: FERRAR PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	RF Amp.	14A7	14A7	8V	
2	Converter	14Q7	14Q7	8AL	
3	IF Amp.-Det.-AVC	14R7	14R7	8AE	
4	Phase Inv.-AF	12SL7GT	12SL7GT	8BD	
5	Power Output	50L6GT	50L6GT	7AC	
6	"	50L6GT	50L6GT	7AC	
7	Rectifier	35Y4	35Y4	5AL	
8	"	35Y4	35Y4	5AL	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: FERRAR PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
9A	30	150		PRS150-30	5544S1-C	FP357	DSB-2x40-150	UT-301	Filter - Green
B	40	150		PRSA150-40-40			M-30-150	TA-440	" - Blue
C	40	150							" - Red
10A	25	25		PRS25-25	BRD202A	TCD26	M-25-25	TA-25	Cath. Bypass
B	25	25		PRS-25-25			M-25-25	TA-25	" "
11	.1	200		484-.1	DT4P1	TP428	S-4-1	TC-1	Line Filter
12	.006	400		484-006	DT6D6	TP409	S-6-006	TC-26	Audio Coupling
13	.006	400		484-006	DT6D6	TP409	S-6-006	TC-26	" "
14	.006	400		484-006	DT6D6	TP409	S-6-006	TC-26	Tone Compensation
15	.05	200		484-05	DT4S5	TP426	S-4-05	TC-15	Audio Coupling
16	.1	200		484-.1	DT4P1	TP428	S-4-1	TC-1	AVC Filter
17	.05	200		484-05	DT4S5	TP426	S-4-05	TC-15	IF Cath. Bypass
18	.25	200		484-.25	DT4P25	TP430	S-4-25	TC-2	RF Bypass Pwr. Supp.
19	.1	200		484-.1	DT4P1	TP428	S-4-1	TC-1	RF Cath. Bypass
20	.1	200		484-.1	DT4P1	TP428	S-4-1	TC-1	AVC Filter
21	.01	400		484-01	DT4S1	TP421	S-4-01	TC-11	Ext. Grd. Isolation
22	500	500		1468-0005	5W5T5	MC245	MO.5-35	1FM-35	Tone Compensation
23	50	500		1468-00005	5W5Q5	MC225	MO.5-45	1FM-45	Diode Filter
24	100	500		1468-0001	5W5T1	MC235	MO.5-31	1FM-31	" "
25	100	500		1468-0001	5W5T1	MC235	MO.5-31	1FM-31	AVC Coupling
26	50	500		1468-00005	5W5Q5	MC225	MO.5-45	1FM-45	Osc. Grid Capacitor
27	5000	300		1468-005	1W5D5	MC465	MW.5-25	1FM-25	Fixed Padder
28	450	500							" "
29	100	500		1468-0001	5W5T1	MC235	MO.5-31	1FM-31	RF Coupling

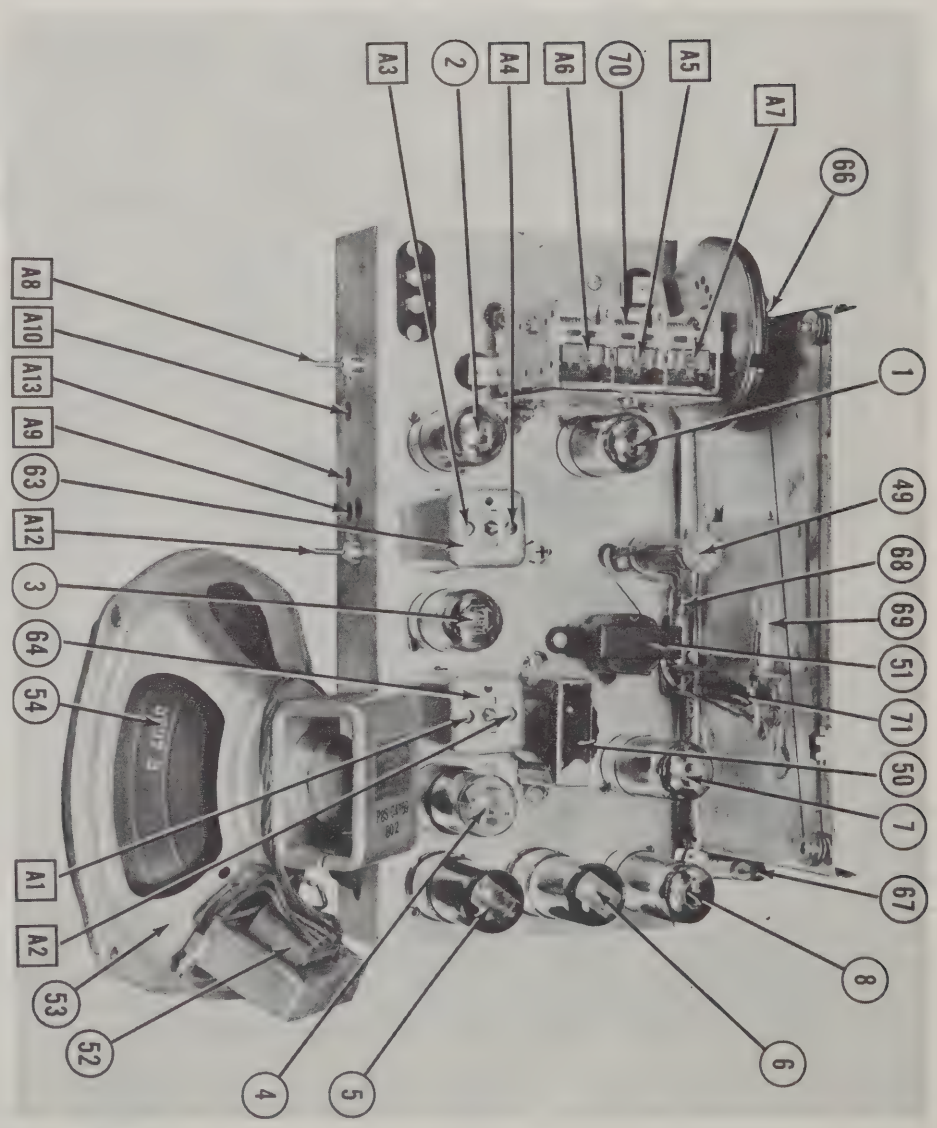
CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: FERRAR PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
30A	500KΩ	1		MR48	D13-133	M-60-Z	Volume Control
B	Shaft			Not Req.	A	Not Req.	Attach to 30A per instructions
31A	500KΩ	1		MR48	D13-133	M-60-Z	Tone Control
B	Shaft			Not Req.	A	Not Req.	Attach to 31A per instructions
C	Switch			M26	41	SW-A	" " " " "

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: FERRAR PART No.	IRC PART No.	IDENTIFICATION CODES
32	100KΩ	½		BTS-100K	Br.-Blk.-Yl. AVC Network
33	300Ω	½		BW-½-330	Or.-Blk.-Br. RF Cathode
34	20KΩ	½		BTS-22K	Red-Blk.-Or. Oscillator Grid
35	510Ω	½		BTS-470	Grn.-Br.-Br. IF Cathode
36	1 Meg.	½		BTS-1 Meg.	Br.-Blk.-Grn. AVC Diode Load
37	1 Meg.	½		BTS-1 Meg.	Br.-Blk.-Grn. AVC Network
38	510KΩ	½		BTS-470K	Grn.-Br.-Yl. AVC Load
39	51KΩ	½		BTS-47K	Grn.-Br.-Or. Diode RF Filter
40	12KΩ	½		BTS-12K	Br.-Red-Or. AF Cathode
41	15KΩ	½		BTS-15K	Br.-Grn.-Or. Phase Inverter Grid
42	250KΩ	½		BTS-270K	Red-Grn.-Yl. Phase Inverter Plate Load
43	250KΩ	½		BTS-270K	Red-Grn.-Yl. AF Plate Load
44	470KΩ	½		BTS-470K	Yl.-Vi.-Yl. Output Grid

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	FERRAR PART No.	IRC PART No.	
45	470KΩ	½		BTS-470K	Yl.-Vl.-Yl. Output Grid
46	100Ω	1		BW-1-100	Br.-Blk.-Br. Output Cathode
47	47Ω	2		BW-2-47	Yl.-Vl.-Blk. Line Dropping
48	47Ω	2		Bw-2-47	Yl.-Vl.-Blk. Line Dropping
49	670Ω	20		DHA-750	" " -See Note 1
71	47Ω	2		BW-2-47	Yl.-Vl.-Blk. Pilot Light Shunt-See Note 2

Note 1-On IRC replacement set slider at 670Ω from one end.
Note 2-Not used in later productions.

FILTER CHOKE

ITEM NO.	RATINGS			REPLACEMENT DATA			INSTALLATION NOTES
	TOTAL DIRECT CURRENT	D. C. RESISTANCE	INDUCTANCE (0 CURRENT 1000~)	FERRAR PART NO.	STANCOR PART NO.	THORDARSON PART NO.	
50	.037A	160Ω	6 Henries		C-1080	T20C52	
51	.031A	300Ω	5 Henries		C-1706	T20C52	

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		FERRAR PART No.	STANCOR PART No.	THORDAR'N PART No.		
	PRI.	SEC.	PRI.	SEC.					
52	3400Ω CT	7.4Ω	160Ω CT	.8Ω		A-3825	T22S60		

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			FERRAR PART No.	JENSEN PART No.		
	FIELD	VC IMP.		ST-104		
53	PM	7.4Ω		Mod. P8-S		
	CONE DIA.	VC DIA.				
54	7-1/2"	15/16"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.			

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	FERRAR PART No.	MEISSNER PART No.	
55	Loop Ant.					
56	BC Ant. Coil	4Ω	1Ω		14-1026	
57	SW Ant. Coil	0Ω	0Ω		14-1044	
58	BC RF Coil	1Ω	3.5Ω		14-1027	
59	SW RF Coil		0Ω		14-1045	
60	SW RF Pl. Lead Coil		2.5Ω			
61	BC Osc. Coil	1Ω	3.5Ω			
62	SW " "		0Ω			
63	Input IF	18Ω	19Ω		16-6658	
64	Output IF	18Ω	18Ω		16-6660	

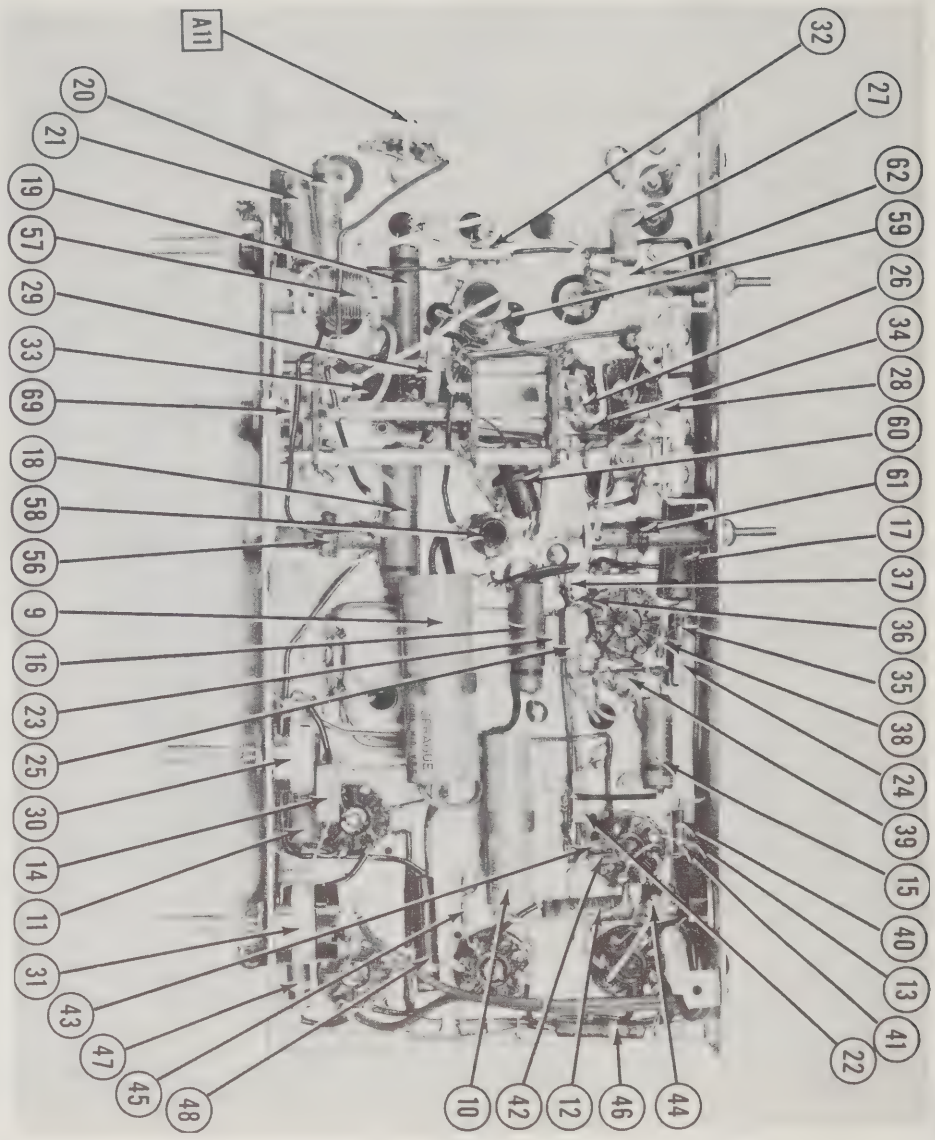
DIAL LIGHT

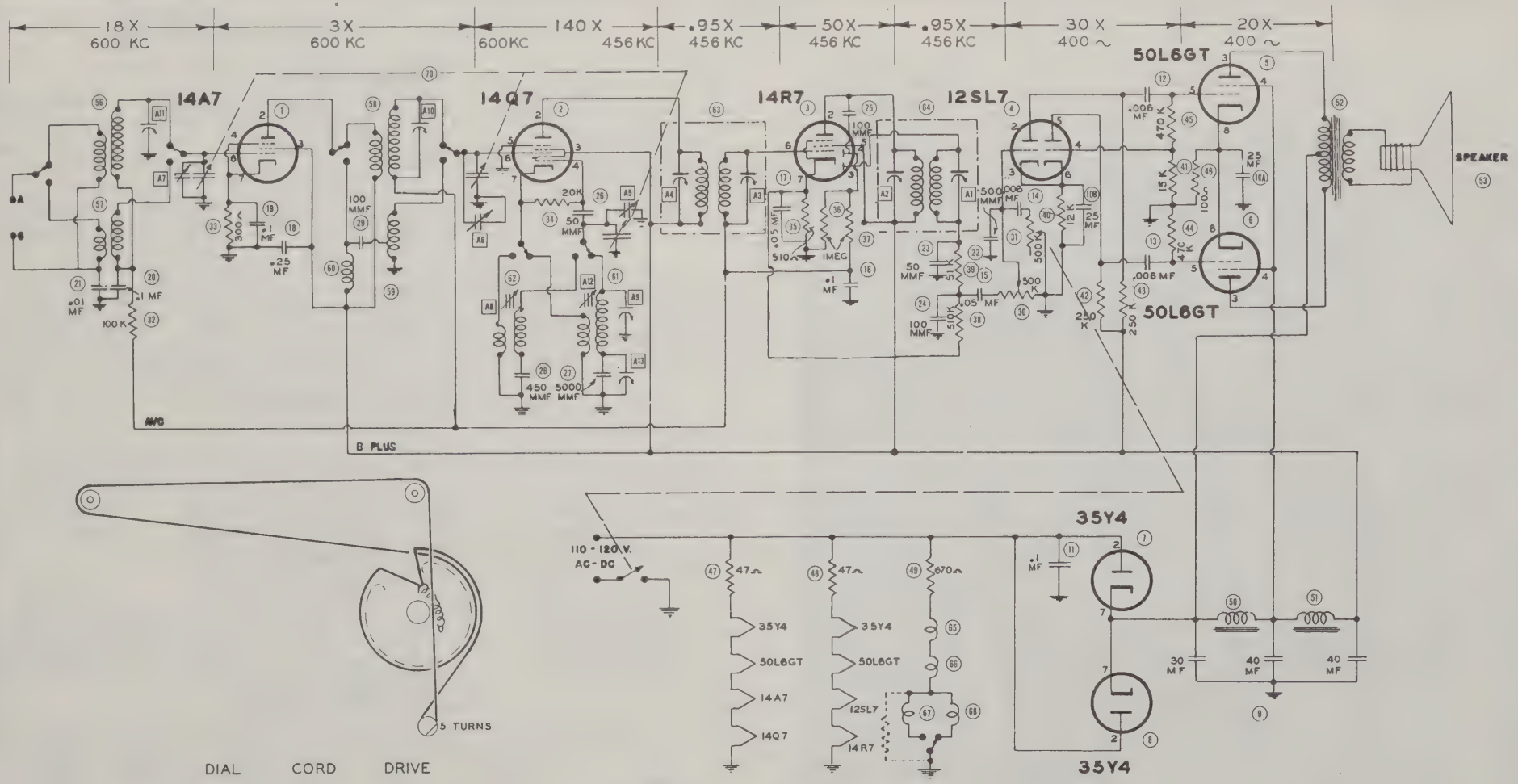
ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					FERRAR PART No.		
65-68	Bayonet	6-8	0.15	Brown			Type 47

MISCELLANEOUS

ITEM No.	PART NAME	FERRAR PART No.	NOTES
69	Bandswitch		
70	3-Gang Var.Cap.		(26-486 MMF) each section

CHASSIS—BOTTOM VIEW





IF=456KC

VOLTAGE AND RESISTANCE READINGS TAKEN IN BROADCAST POSITION.

477-16

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	14A7	26V.AC	115V.DC	115V.DC	3.5V.DC	0V.	0V.	3.5V.DC	13V.AC
2	14Q7	13V.AC	115V.DC	115V.DC	-2.1V.DC	0V.	-2.1V.DC	0V.	0V.
3	14R7	13V.AC	115V.DC	.2V.DC	0V.	115V.DC	0V.	2.2V.DC	0V.
4	12SL7GT	0V.	90V.DC	1.8V.DC	0V.	90V.DC	1.8V.DC	26V.AC	13V.AC
5	50L6GT	0V.	76V.AC	125V.DC	123V.DC	0V.	0V.	26V.AC	8.9V.DC
6	50L6GT	0V.	76V.AC	125V.DC	123V.DC	0V.	0V.	26V.AC	8.9V.DC
7	35Y4	111V.AC	117V.AC	0V.	103V.AC	0V.	0V.	127V.DC	76V.AC
8	35Y4	111V.AC	117V.AC	0V.	103V.AC	0V.	0V.	127V.DC	76V.AC

RESISTANCE READINGS

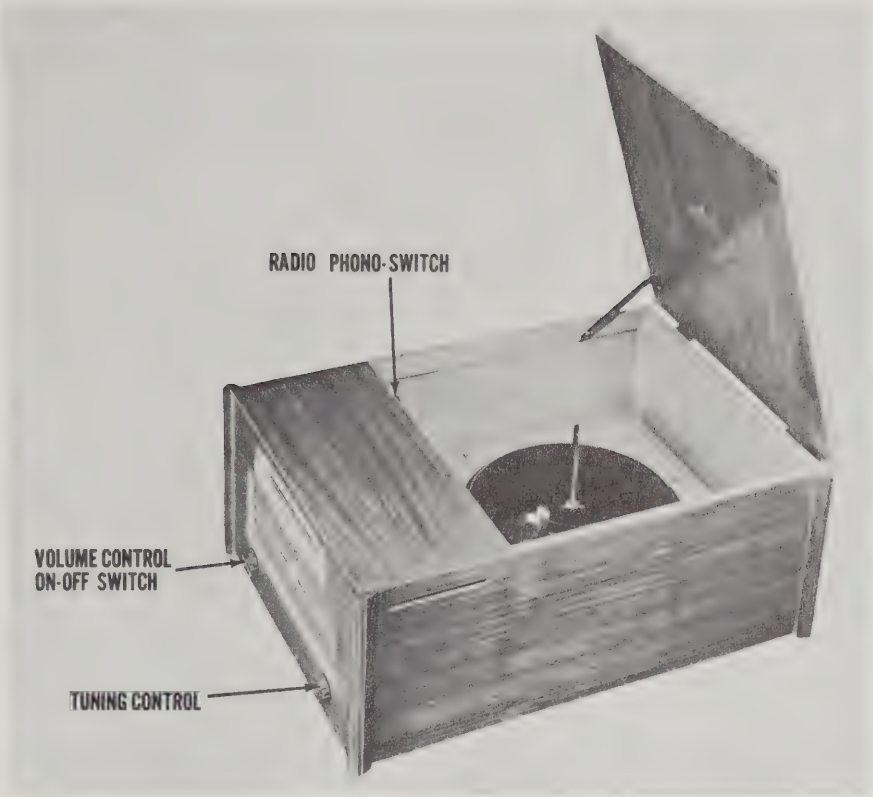
Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	14A7	21Ω	130KΩ	130KΩ	280Ω	0Ω	2 MEG.	280Ω	11Ω
2	14Q7	11Ω	130KΩ	130KΩ	18KΩ	0Ω	2 MEG.	1Ω	0Ω
3	14R7	11Ω	130KΩ	540KΩ	1MEG.	130KΩ	2 MEG.	480Ω	0Ω
4	12SL7GT	450KΩ	400KΩ	10KΩ	12KΩ	400KΩ	10KΩ	21Ω	11Ω
5	50L6GT	0Ω	48Ω	130KΩ	130KΩ	425KΩ	INF.	21Ω	90Ω
6	50L6GT	0Ω	48Ω	130KΩ	130KΩ	475KΩ	INF.	21Ω	90Ω
7	35Y4	57Ω	60Ω	INF.	54Ω	0Ω	INF.	130KΩ	48Ω
8	35Y4	57Ω	60Ω	INF.	54Ω	0Ω	INF.	130KΩ	48Ω

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. **DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.**
2. **Socket connections are shown as bottom views.**
3. **Measured values are from socket pin to common negative.**
4. **Line voltage maintained at 117 volts for voltage readings.**
5. **Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.**
6. **Volume control at maximum, no signal applied for voltage measurements.**



HOFFMAN
MODEL B-400

HOFFMAN
MODEL B-400

HOFFMAN MODEL B-400

TRADE NAME	Hoffman, Model B-400
MANUFACTURER	Hoffman Radio Corp., 3761 S. Hill St., Los Angeles, Calif.
TYPE SET	AC Operated Phono-Radio Combination Superheterodyne with Loop Antenna
TUBES (FIVE)	Types, 12SA7 Converter, 12SG7 IF Amp., 12SQ7 Det.-AVC-AF, 50L6GT Power Output, 35Z5GT/G Rectifier.
POWER SUPPLY	110-120 Volts AC
TUNING RANGE—BROADCAST	530-1650KC RATING .230 Amp. @ 117 Volts AC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use isolation transformer if available. If not, connect a capacitor in series with low side of signal generator and B-. Volume control at maximum position, output of signal generator should be no higher than necessary to obtain output reading. Use an insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD.	High side to rear stator of tuning cap. Low side to B-.	455KC	Tuning cap. fully open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If isolation transformer is not used, reduce dummy ant. to .001 MFD. to reduce hum modulation.
200MMFD	High side to ext. ant. lug. Low side to chassis.	1650KC	"	"	A5	Adjust for maximum output.
200MMFD	"	1400KC	Tune for maximum output.	"	A6	" " " "

DISASSEMBLY INSTRUCTIONS

1. Remove three push-on type control knobs.
2. Remove lock nut from radio-phono switch.
3. Remove phono-motor plug from chassis.
4. Remove four screws holding chassis mounting board. Remove chassis and mounting board.
5. Unsolder phono-pickup leads from radio-phono switch.
6. Remove three chassis mounting bolts. Remove chassis from chassis mounting board.

HOWARD W. SAMS & CO., INC. **Indianapolis Indiana**

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed."
"Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1947 by Howard W. Sams & Co., Inc., Indianapolis, Indiana, U. S. A. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc."

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: HOFFMAN PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	Converter	12SA7	12SA7	8R	
2	IF Amp.	12SG7	12SG7	8BK	
3	Det.-AVC-AF	12SQ7	12SQ7	8Q	
4	Power Output	50L6GT	50L6GT	7AC	
5	Rectifier	35Z5GT/G	35Z5GT/G	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: HOFFMAN PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
6A	50	150	4201	AF1010D	UP5315	FP214	DY-5030-150	EL-35	■ Filter
B	30	150							▲ "
7	.05	400	4101	484-05	DT4S5	TP426	S-4-05	TC-15	Line Filter
8	.2	200	4108	484-.2	DT4P2	TP429	S-4-2	TC-2	Line Isolation
9	.02	400	4106	484-02	DT4S2	TP423	S-4-02	TC-12	Output Plate Bypass
10	.005	600	4102	684-005	DT6D5	TP408	S-6-005	TC-25	Audio Coupling
11	.05	200	4100	484-05	DT4S5	TP426	S-4-05	TC-15	RF Bypass Pwr. Supp.
12	.005	600	4102	684-005	DT6D5	TP408	S-6-005	TC-25	Audio Coupling
13	.05	200	4100	484-05	DT4S5	TP426	S-4-05	TC-15	AVC Filter
14	.005	600	4102	684-005	DT6D5	TP408	S-6-005	TC-25	Ext. Ant. Isolation
15	.05	200	4100	484-05	DT4S5	TP426	S-4-05	TC-15	Phono Isolation
16	270	500	4001	1468-00025	5W5T25	MC240	MO.5-327	1FM-325	Audio Plate Bypass
17	270	500	4001	1468-00025	5W5T25	MC240	MO.5-327	1FM-325	IF Bypass Diode
18	100	500	4000	1468-0001	5W5T1	MC235	MO.5-31	1FM-31	Osc. Grid Capacitor

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: HOFFMAN PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
19A	500KΩ	1	4802	MR48	D13-133	M-60-Z	Volume Control
B	Shaft		Not Req.	Not Req.	A	Not Req.	Attach to 19A per instructions
C	Switch		" "	M26	41	SW-A	" " " " "

RESISTORS

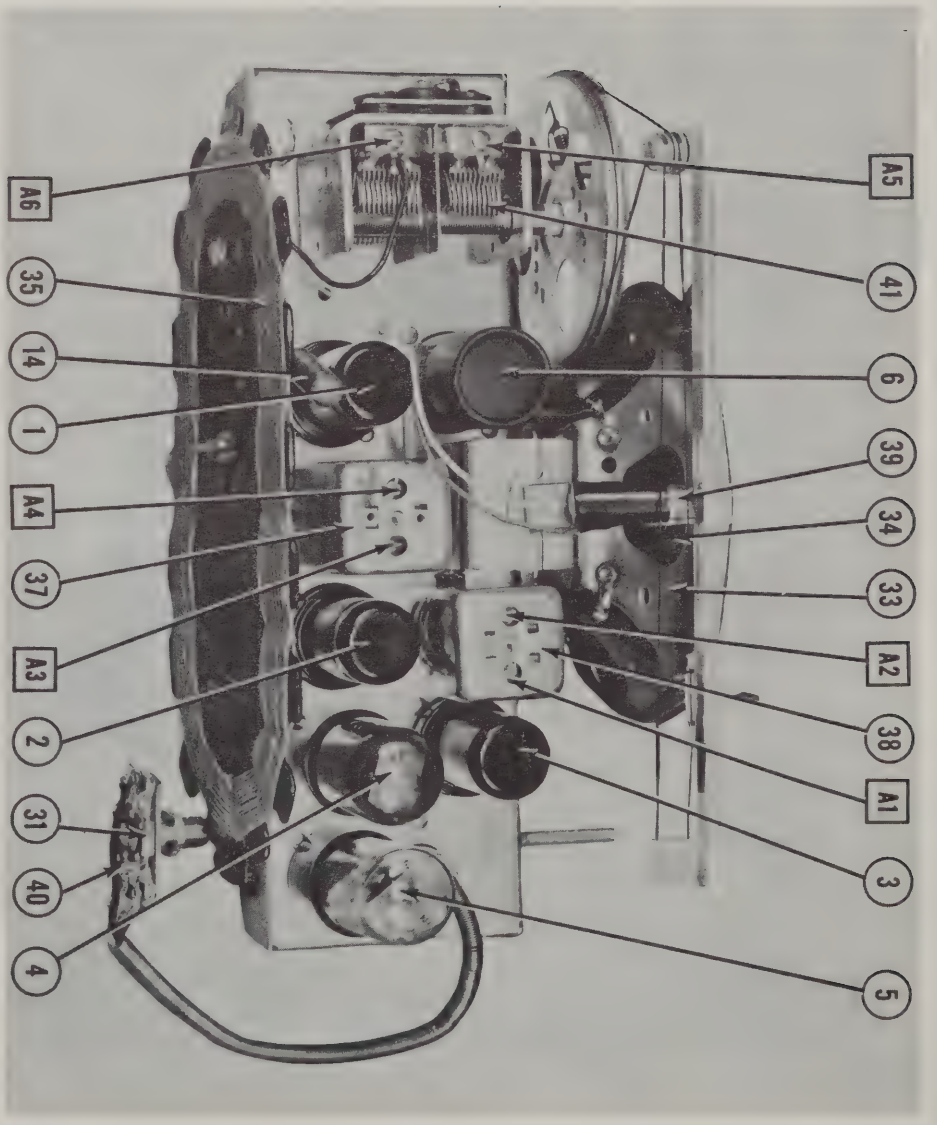
ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: HOFFMAN PART No.	IRC PART No.	IDENTIFICATION CODES
20	22KΩ	½	4501	BTS-22K	Red-Red-Or. Oscillator Grid
21	2.2 Meg.	½	4502	BTS-2.2 Meg.	Red-Red-Grn. AVC Network
22	10 Meg.	½	4505	BTS-10 Meg.	Br.-Blk.-Blue AVC Network-See Note
23	47KΩ	½	4504	BTS-47K	Yl.-Vi.-Or. Diode RF Filter
24	10 Meg.	½	4505	BTS-10 Meg.	Br.-Blk.-Blue AF Grid
25	220KΩ	½	4500	BTS-220K	Red-Red-Yl. AF Plate Load
26	470KΩ	½	4506	BTS-470K	Yl.-Vi.-Yl. Output Grid
27	150Ω	½	4510	BW-½-150	Br.-Grn.-Br. Output Cathode
28	1800Ω	1	4552	BTA-1800	Br.-Gray-Red Filter
29	470KΩ	½	4506	BTS-470K	Yl.-Vi.-Yl. Line Isolation
30	47Ω	½	4508	BW-½-47	Yl.-Vi.-Blk. Surge Limiter
31	470KΩ	½	4506	BTS-470K	Yl.-Vi.-Yl. Series Phono

Note - Not used in all models.

TRANSFORMER (OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: HOFFMAN PART No.	STANCOR PART No.	THORDAR'N PART No.		INSTALLATION NOTES
32A	3000Ω	3.8Ω	272Ω tapped @ 8Ω	1.5Ω	5117	A-3876*			*Add extra filter to reduce hum level.
B	1850Ω	3.8Ω	180Ω	.8Ω	5101	A-3865	T22S45		Used in early models.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA: HOFFMAN PART No.	JENSEN PART No.		INSTALLATION NOTES
	FIELD	VC IMP.		ST-107†		
33	PM	3.8Ω	9023	Mod. P5-V		†Drill and tap magnet frame.
	CONE DIA.	VC DIA.				
34	5-1/8"	1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT			

R F COILS

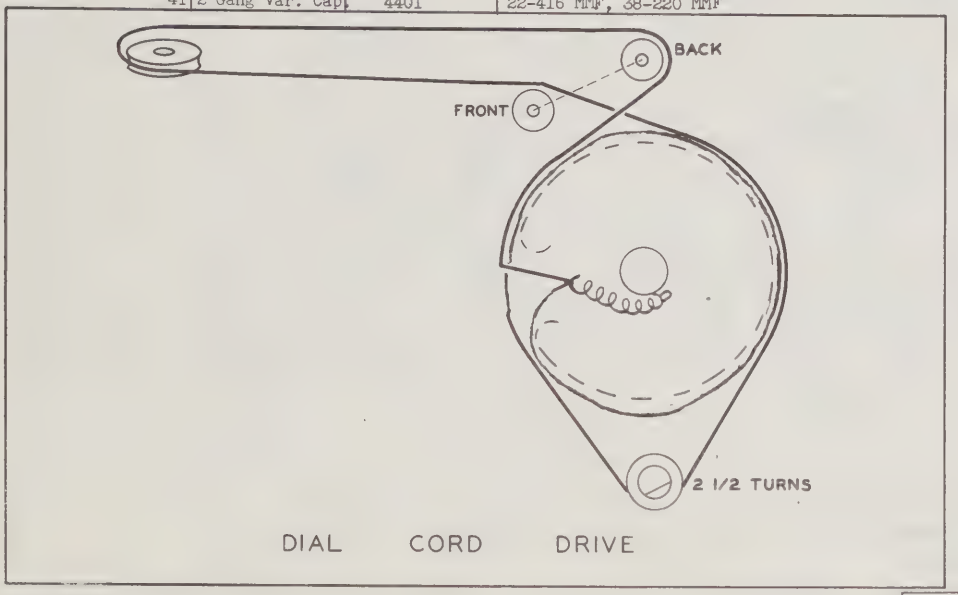
ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA: HOFFMAN PART No.	MEISSNER PART No.	
35	Loop Ant.	.2Ω	1.5Ω	5255		
36	Osc. Coil	1.5Ω	6Ω	5208	14-1040	
37	Input IF	12.5Ω	12.5Ω	5205	16-6658	
38	Output IF	12.5Ω	12Ω	5206	16-6660	

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA: HOFFMAN PART No.		INSTALLATION NOTES
39	Bayonet	6-8	0.15	Brown			Type 47

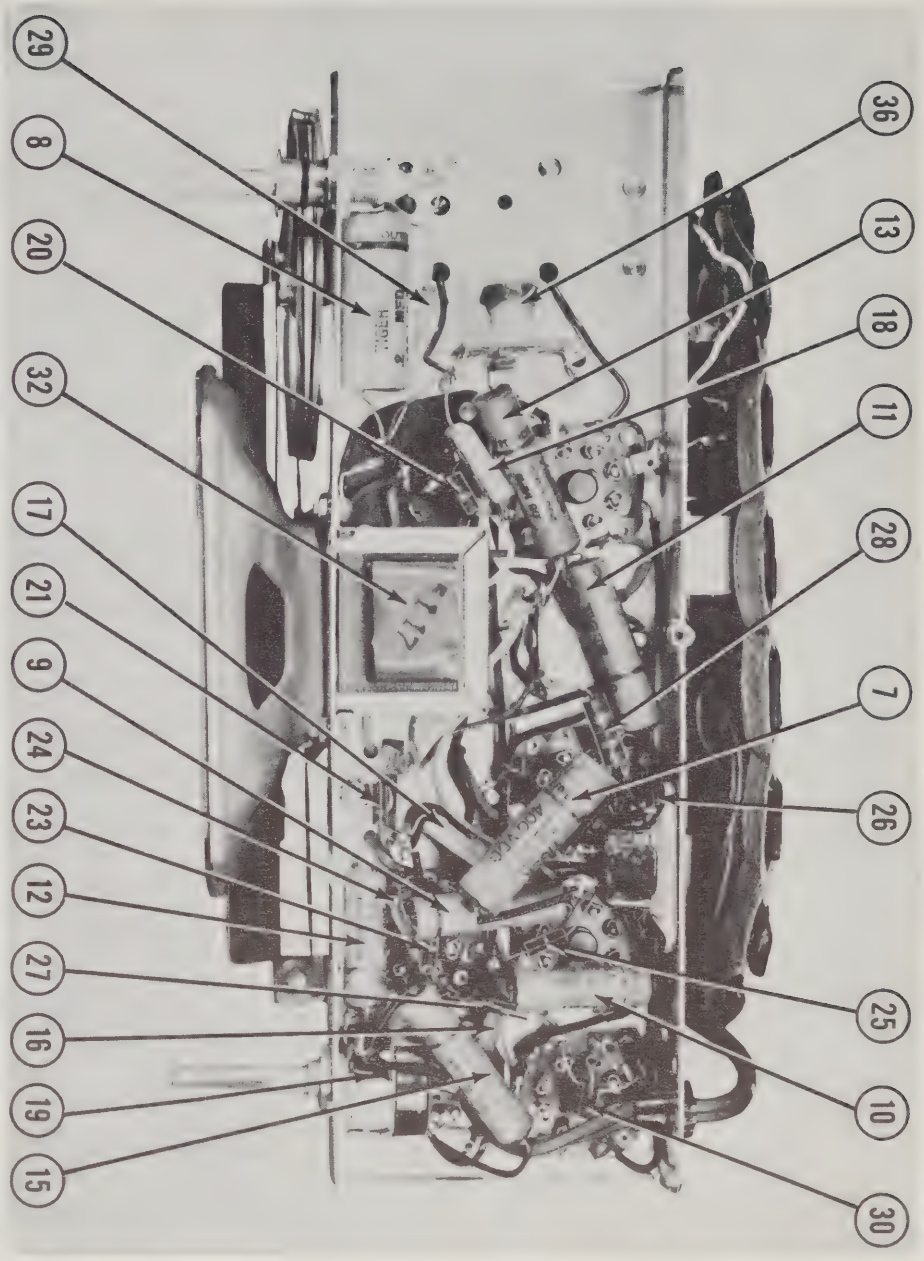
MISCELLANEOUS

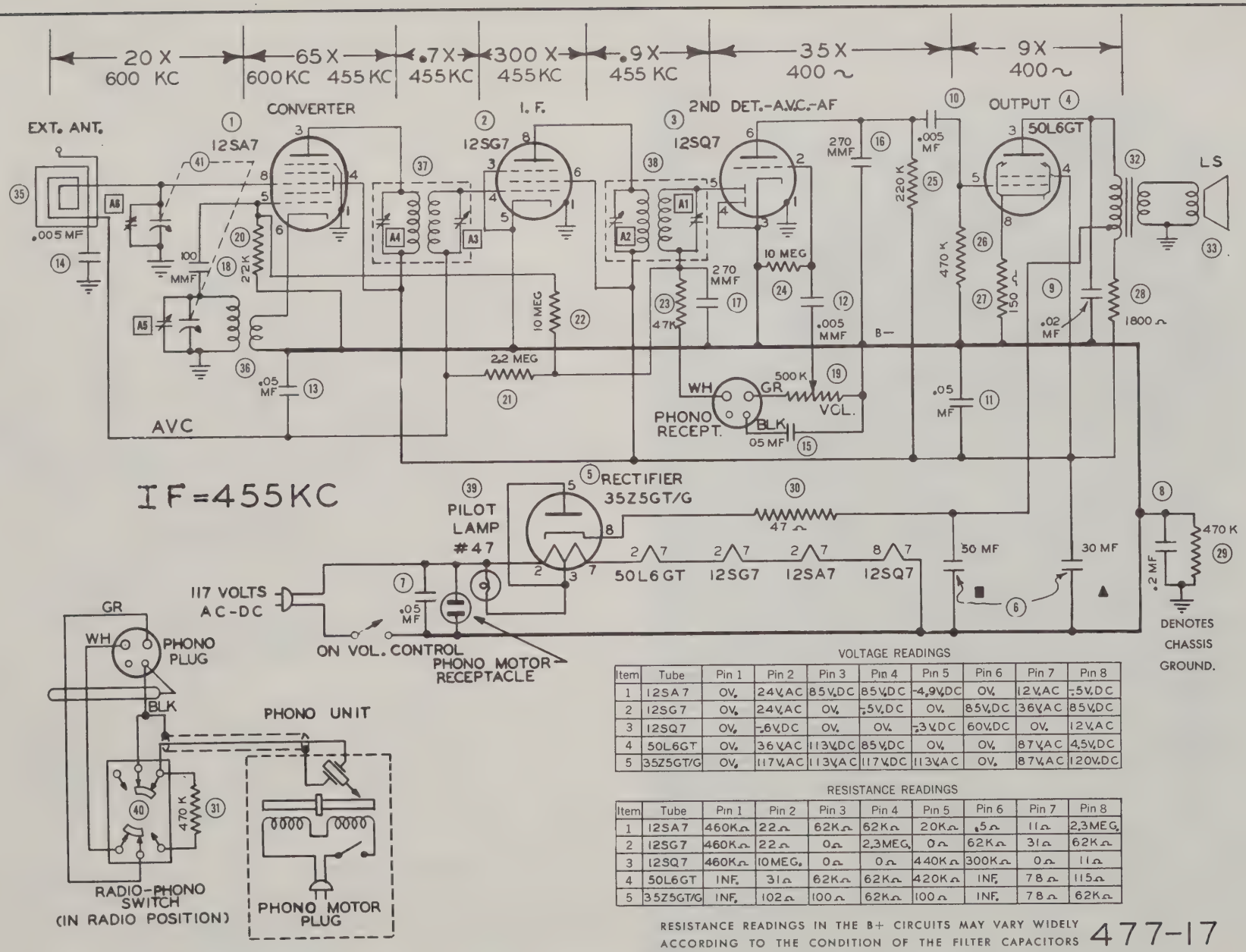
ITEM No.	PART NAME	HOFFMAN PART No.	NOTES
40	Switch		Radio-Phono
41	2 Gang Var. Cap.	4401	22-416 MMF, 38-220 MMF



DIAL CORD DRIVE

CHASSIS—BOTTOM VIEW





VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SA7	0V.	24V.AC	85V.DC	85V.DC	-4.9V.DC	0V.	12V.AC	-.5V.DC
2	12SG7	0V.	24V.AC	0V.	-.5V.DC	0V.	85V.DC	36V.AC	85V.DC
3	12SQ7	0V.	-.6V.DC	0V.	0V.	-.3V.DC	60V.DC	0V.	12V.AC
4	50L6GT	0V.	36V.AC	113V.DC	85V.DC	0V.	0V.	87V.AC	4.5V.DC
5	35Z5GT/G	0V.	117V.AC	113V.AC	117V.DC	113V.AC	0V.	87V.AC	120V.DC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SA7	460KΩ	22Ω	62KΩ	62KΩ	20KΩ	.5Ω	11Ω	2.3MEG.
2	12SG7	460KΩ	22Ω	0Ω	2.3MEG.	0Ω	62KΩ	31Ω	62KΩ
3	12SQ7	460KΩ	10MEG.	0Ω	0Ω	440KΩ	300KΩ	0Ω	11Ω
4	50L6GT	INF.	31Ω	62KΩ	62KΩ	420KΩ	INF.	78Ω	115Ω
5	35Z5GT/G	INF.	102Ω	100Ω	62KΩ	100Ω	INF.	78Ω	62KΩ

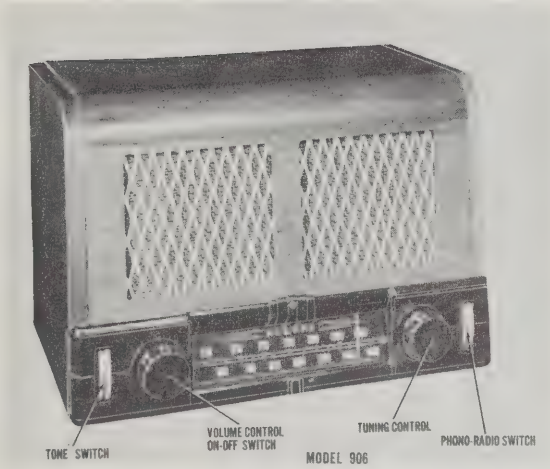
RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

477-17

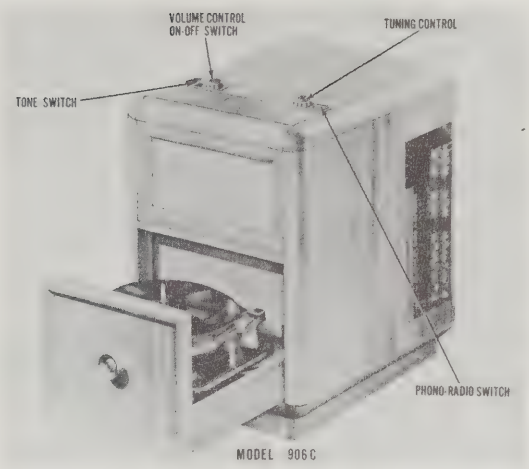
THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.



MODEL 906



MODEL 906C

HOWARD MODEL 906

TRADE NAME	Howard, Model 906 (Table Model), 906C (Chairside Model with Automatic Changer)
MANUFACTURER	Howard Radio Co., 1735 Belmont Ave., Chicago 13, Ill.
TYPE SET	AC Operated Superheterodyne (Model 906 with Phono Provisions-906C with Auto. Changer)
TUBES (SIX)	Types, 6SK7 RF Amp., 6SA7 Converter, 6SK7GT IF Amp., 6SQ7 Det.-AVC-AF, 6V6GT/G Power Output, 5Y3GT Rectifier.
POWER SUPPLY	110-120 Volts AC
TUNING RANGE—BROADCAST	535-1650KC RATING .530 Amp. @ 117 Volts AC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer, turn tuning capacitor fully closed and set pointer to last reference mark at low frequency end of dial. When aligning receiver connect loop to receiver through extended leads. Volume control at maximum position. Output of signal generator should be no higher than necessary to obtain output reading. Use an insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.05 MFD	High side to Pin 8 (grid) of 6SA7. Low side to chassis.	455KC	Tuning cap. open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output.
.05 MFD	High side to ext. ant. lug. Low side to chassis.	"	Tuning cap. closed.	"	A5	Adjust for minimum output.
400Ω	"	1400KC	1400KC	"	A6	Adjust for maximum output.
400Ω	"	"	Tune for maximum output.	"	A7	" " " "

DISASSEMBLY INSTRUCTIONS (MODEL 906C)

Take knobs off volume control and tuning control by loosening set screws. Remove the wood screws that are located inside the record storage space at the top rear of cabinet. The entire top wood panel lifts out by pushing upward inside the storage space one inch, and then remove panel by lifting to the rear of the cabinet. After the panel is removed, it is easy to see the mounting bolts that hold the chassis.

TO REMOVE DRAWER

Pull the drawer out to its full extremity. Place your hands (one on each side) beneath the drawer about 3 inches from the back and feel along the track until you hit two little metal flaps that are the stops for the drawer. Lift these up with your index fingers and the drawer can then be pulled right out of the cabinet.

HOWARD W. SAMS & CO., INC. **Indianapolis Indiana**

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed."
"Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1947 by Howard W. Sams & Co., Inc., Indianapolis, Indiana, U. S. A. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc."

HOWARD
MODELS 906, 906C

HOWARD
MODELS 906, 906C

PARTS LIST AND DESCRIPTIONS

HOWARD
MODEL 906, 906C

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: HOWARD PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	RF Amp.	6SK7	6SK7	8N	
2	Converter	6SA7	6SA7	8R	
3	IF Amp.	6SK7GT	6SK7GT	8N	
4	Det.-AVC-AF	6SQ7	6SQ7	8Q	
5	Power Output	6V6GT/G	6V6GT/G	7AC	
6	Rectifier	5Y3GT	5Y3GT	5T	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: HOWARD PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
7A	30	450	CE-0009	AF444J4A	UP9DJ53†	FP346	DY-313	EL-330	◓ Filter
B	20	450							■ "
C	25	25							▲ Cath. Bypass
8	.05	200		484-05	DT4S5	TP426	S-4-05	TC-15	Line Bypass
9	.002	600		684-002	DT6D2	TP405	S-6-002	TC-22	Output Plate Bypass
10	.006	400		484-006	DT6D6	TP409	S-6-006	TC-26	Tone Compensation
11	.01	600		684-01	DT6S1	TP410	S-6-01	TC-11	Audio Coupling
12	.01	600		684-01	DT6S1	TP410	S-6-01	TC-11	" "
13	.05	400		484-05	DT4S5	TP426	S-4-05	TC-15	AVC Filter
14	.1	600		684-.1	DT6P1	TP418	S-6-1	TC-1	RF Bypass Pwr. Supp.
15	.05	400		484-05	DT4S5	TP426	S-4-05	TC-15	IF Cath. Bypass
16	.1	400		484-.1	DT4P1	TP428	S-4-1	TC-1	Screen Bypass
17	.05	400		484-05	DT4S5	TP426	S-4-05	TC-15	RF Cath. Bypass
18	300	500		1468-0003	5W5T3	MC241	MO.5-33	1FM-33	Audio Plate Bypass
19	100	500		1468-0001	5W5T1	MC235	MO.5-31	1FM-31	Diode Filter
20	100	500		1468-0001	5W5T1	MC235	MO.5-31	1FM-31	" "
21	50	500		1468-00005	5W5Q5	MC225	MO.5-45	1FM-45	Osc. Grid Capacitor
22	500	500		1468-0005	5W5T5	MC245	MO.5-35	1FM-35	RF Coupling
23	5								Peaking Capacitor
24	300	500		1468-0003	5W5T3	MC241	MO.5-33	1FM-33	RF Coupling

†Do not use one 10MFD section.

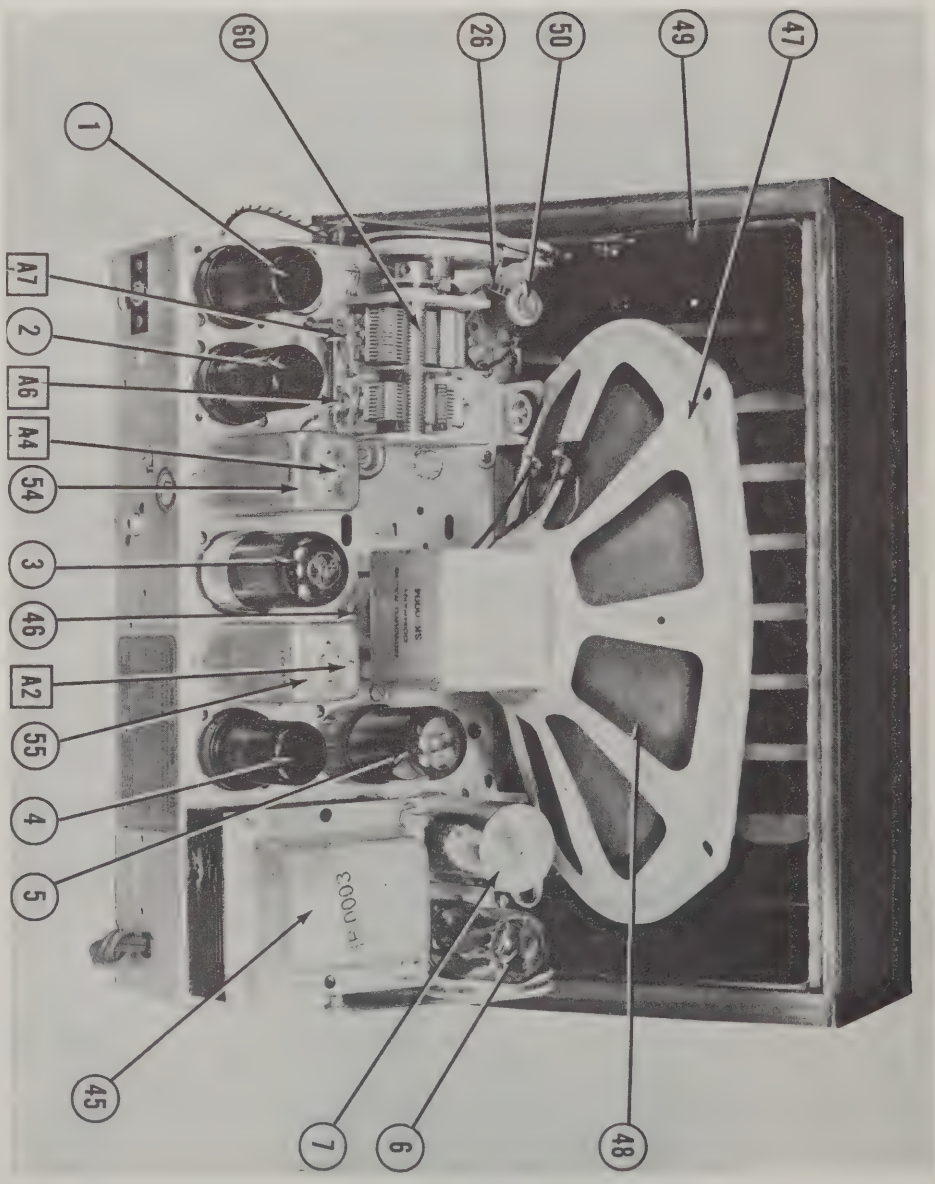
CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: HOWARD PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
25A	500K	1	(VC0005) (VC0006)	MR48	D13-133	M-60-Z	Vol. Control
B	Shaft		Not Req.	Not Req.	A	Not Req.	Attach to 25A per instructions
C	Switch		" "	M26	41	SW-A	" " " " "

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: HOWARD PART No.	IRC PART No.	IDENTIFICATION CODES
26	2200Ω	1		BTS-2200	Red-Red-Red Series Ant.
27	470Ω	½		BTS-470	Yl.-Vi.-Br. RF Cathode
28	1 Meg.	½		BTS-1 Meg.	Br.-Blk.-Grn. RF Grid
29	10KΩ	½		BTS-10K	Br.-Blk.-Or. RF Plate Load
30	1 Meg.	½		BTS-1 Meg.	Br.-Blk.-Grn. Converter Grid
31	22KΩ	½		BTS-22K	Red-Red-Or. Oscillator Grid
32	470Ω	½		BTS-470	Yl.-Vi.-Br. IF Cathode
33	15KΩ	2		BT-2-15K	Br.-Grn.-Or. Screen Dropping
34	2.2 Meg.	½		BTS-2.2 Meg.	Red-Red-Grn. AVC Network
35	47KΩ	½		BTS-47K	Yl.-Vi.-Or. Diode RF Filter
36	10 Meg.	½		BTS-10 Meg.	Br.-Blk.-Blue AF Grid
37	220KΩ	½		BTS-220K	Red-Red-Yl. AF Plate Load
38	470KΩ	½		BTS-470K	Yl.-Vi.-Yl. Output Grid
39	330Ω	1		BW-1-330	Or.-Or.-Br. Output Cathode
40	10KΩ	½		BTS-10K	Br.-Blk.-Or. Filter
41	2200Ω	2		BT-2-2200	Red-Red-Red Filter
42	68KΩ	½		BTS-68K	Blue-Gray-Or. Tone Compensation
43	2Ω	1		BW-1-2.2	Red-Blk.-Gold Series Pilot Light

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

FILTER CHOKE

ITEM NO.	RATINGS: TOTAL DIRECT CURRENT	RATINGS: D. C. RESISTANCE	RATINGS: INDUCTANCE @ CURRENT 1000~	REPLACEMENT DATA: HOWARD PART NO.	REPLACEMENT DATA: STANCOR PART NO.	REPLACEMENT DATA: THORDARSON PART NO.	INSTALLATION NOTES
44	.026A	470Ω	8 Henries	LC0010	C-1708*	T20C52*	*Drill new mounting holes.

TRANSFORMER (POWER)

ITEM No.	RATING: PRI.	RATING: SEC. 1	RATING: SEC. 2	RATING: SEC. 3	REPLACEMENT DATA: HOWARD PART No.	REPLACEMENT DATA: STANCOR PART No.	REPLACEMENT DATA: THORDARSON PART No.	INSTALLATION NOTES
45	117V AC @ .53A	600V CT @ .067A	5.1V AC @ 1.8A	6.4V AC @ 2.0A	TP-0003	P-6120	T22R04	

TRANSFORMER (OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: HOWARD PART No.	REPLACEMENT DATA: STANCOR PART No.	REPLACEMENT DATA: THORDAR'N PART No.		INSTALLATION NOTES
46	9600Ω	2.6Ω	340Ω	.6Ω	TO-0006	A-3879†	T22S47†		†Drill one new mounting hole.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA: HOWARD PART No.	REPLACEMENT DATA: JENSEN PART No.		INSTALLATION NOTES
	FIELD	VC IMP.				
47	PM	3.6Ω	SK-0004			
	CONE DIA.	VC DIA.				
48	6-1/4" x 9-1/8"	7/8"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT			

R F COILS

ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA: HOWARD PART No.	REPLACEMENT DATA: MEISSNER PART No.	
49A	Loop Ant.		.5Ω	AN-0005		Used in Model 906
B	Loop Ant.			AN-0006		" " " 906C
50	Loop Load Coil		2.3Ω	LA-0007		
51	RF Coil		16Ω	LR-0002		
52	Wave Trap		72Ω	LR-0001		
53	Osc. Coil		3Ω	LO-0014	14-1040	
54	Input IF	14Ω	14Ω	LI-0014	16-5740	
55	Output IF	23Ω	24Ω	LI-0015	16-5742	

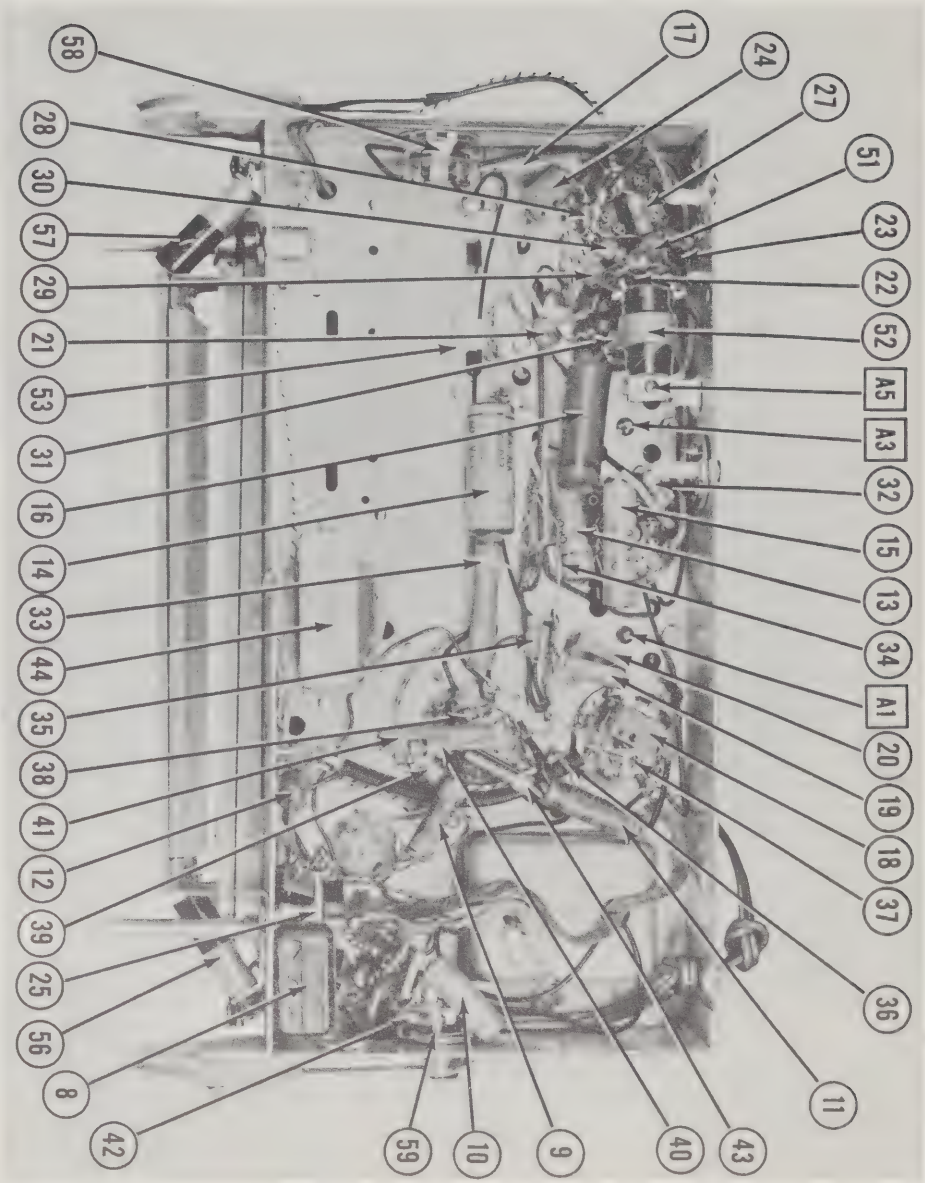
DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA: HOWARD PART No.	REPLACEMENT DATA:	INSTALLATION NOTES
56	Bayonet	6-8	0.15	Brown			Type 47
57	"	6-8	0.15	"			" "

MISCELLANEOUS

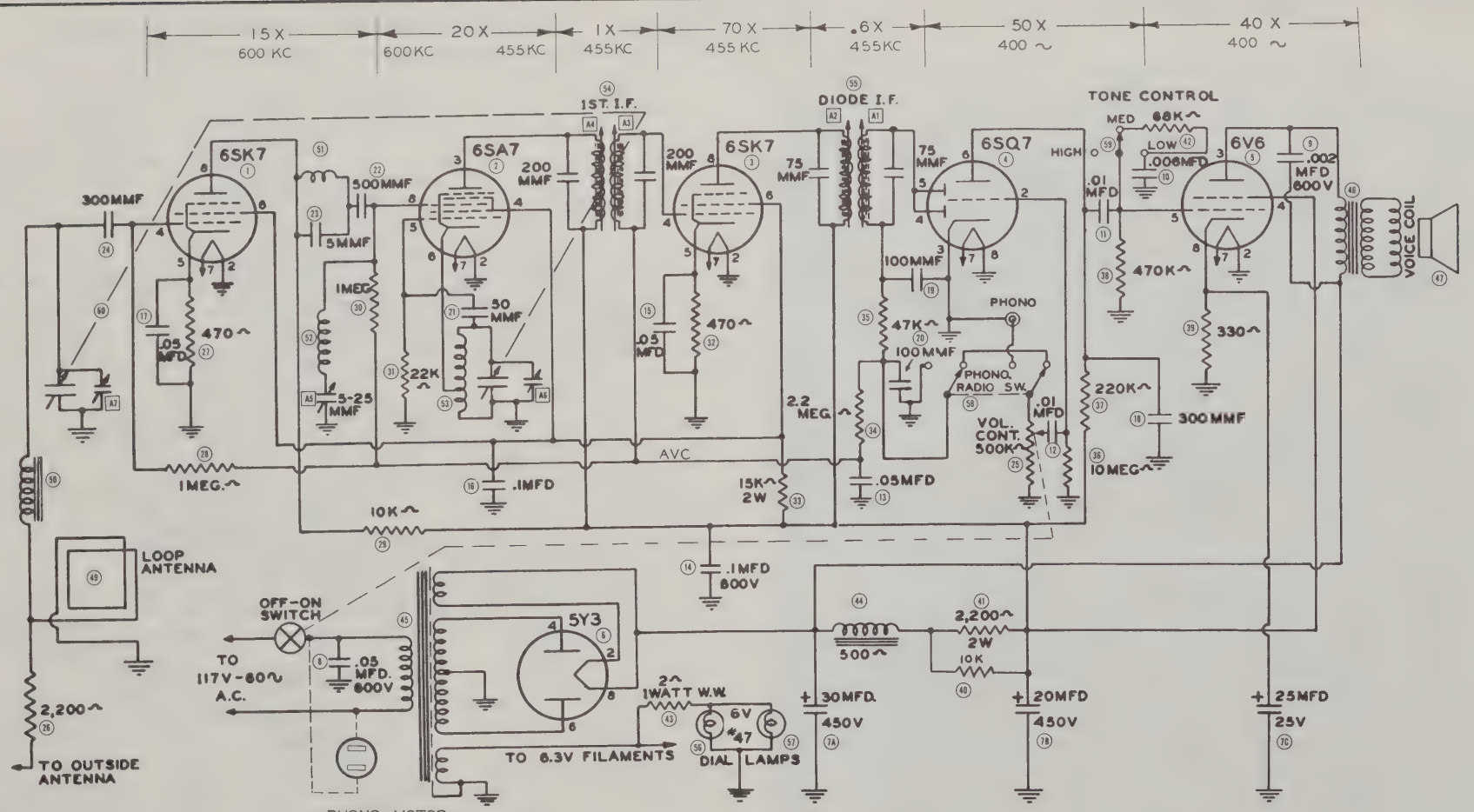
ITEM No.	PART NAME	HOWARD PART No.	NOTES
58	Radio-Phono Sw.	SW-0009	DPDT
59	Tone Switch	SW-0010	3 Position
60	2 Gang Var. Cap	AC-0004	28-476 MMF, 32-194 MMF

CHASSIS—BOTTOM VIEW



HOWARD MODEL 906, 906C

HOWARD MODEL 906, 906C



VOLTAGE AND RESISTANCE TAKEN IN BROADCAST POSITION

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SK7	0V.	0V.	0V.	-1V.DC	3.6V.DC	90V.DC	6.3V.AC	220V.DC
2	6SA7	0V.	0V.	268V.DC	90V.DC	-6.1V.DC	0V.	6.3V.AC	0V.
3	6SK7GT	0V.	0V.	0V.	0V.	3.8V.DC	90V.DC	6.3V.AC	268V.DC
4	6SQ7	0V.	-.3V.DC	0V.	-.5V.DC	-.5V.DC	108V.DC	6.3V.AC	0V.
5	6V6GT/G	0V.	0V.	328V.DC	268V.DC	0V.	6.3V.AC	6.3V.AC	15V.DC
6	5Y3GT	0V.	340V.DC	0V.	300V.AC	0V.	300V.AC	0V.	340V.DC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SK7	0 Ω	0 Ω	0 Ω	3.2MEG.	480 Ω	250K Ω	.1 Ω	250K Ω
2	6SA7	0 Ω	0 Ω	250K Ω	250K Ω	22K Ω	.5 Ω	.1 Ω	3.5MEG.
3	6SK7GT	0 Ω	0 Ω	0 Ω	2.5MEG.	480 Ω	250K Ω	.1 Ω	250K Ω
4	6SQ7	0 Ω	10MEG.	0 Ω	490K Ω	490K Ω	550K Ω	.1 Ω	0 Ω
5	6V6GT/G	0 Ω	0 Ω	250K Ω	250K Ω	410K Ω	.8 Ω	.1 Ω	300 Ω
6	5Y3GT	0 Ω	250K Ω	INF.	190 Ω	INF.	200 Ω	INF.	250K Ω

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

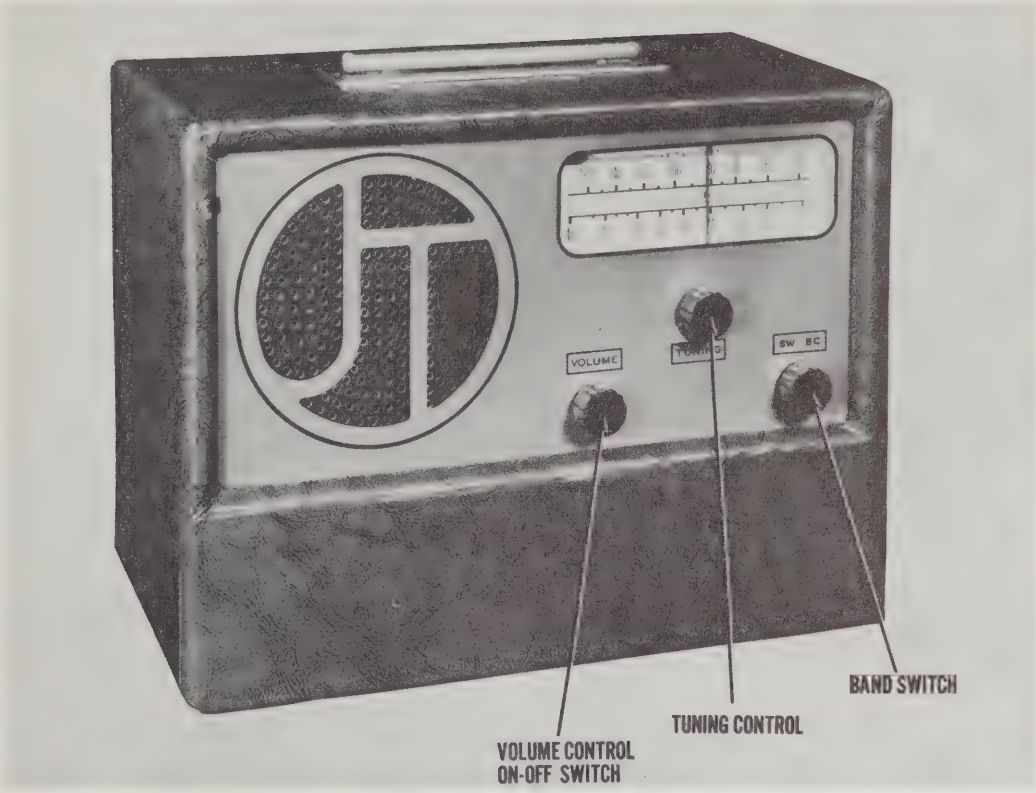
RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

477-18

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

JEFFERSON-TRAVIS
MODEL MR-3



JEFFERSON-TRAVIS
MODEL MR-3

JEFFERSON-TRAVIS MODEL MR-3

TRADE NAME	Jefferson-Travis, Model MR-3
MANUFACTURER	Jefferson-Travis, Inc., 380 Second Ave., New York City, N.Y.
TYPE SET	Three Power Portable Superheterodyne Receiver-Self Contained Loop Antenna
TUBES (FIVE)	Types, 1LA6 Converter, 1LN5 1st IF Amp., 1LN5 2nd IF Amp., 1LH4 Det.-AVC-AF, 3LF4 Power Output.
RATING	.240 Amp. @ 117 Volts or 73MA @ 8.9 Volts DC & 14MA @ 89 Volts DC
POWER SUPPLY	110-120 Volts AC-DC or 9 Volts "A" Battery & 90 Volts "B" Battery
TUNING RANGE—BROADCAST	540-1600KC **SHORT WAVE** 1600-4800KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer, turn tuning cap fully closed and set pointer at end of BC dial line at low freq. end of dial. After adjustment of A6 replace chassis in cabinet, batteries in battery compartment. Slide right end of chassis out until the trimmers are accessible for alignment of RF section. Use battery power whenever available. If AC power is used without isolation transformer connect a capacitor in series with low side of signal generator and B-. Volume control at maximum position. Output of signal generator should be no higher than necessary to obtain output reading. Use an insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.01 MFD	High side to front stator of tuning cap. Low side to B-.	455KC	BC	Tuning cap. fully open.	Across voice coil	A1,A2, A3,A4, A5,A6.	Adjust for maximum output. If isolation trans. is not used, reduce dummy ant. to .001MFD to reduce hum modulation.
	Loop	1600KC	"	1600KC	"	A7	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
	"	1400KC	"	Tune for maximum output.	"	A8	"
	"	600KC	"	"	"	A9	Rock tuning cap. and adjust for maximum output. Recheck A7,A8.
	"	4.6MC	SW	Tuning cap. fully open.	"	A10	Adjust for maximum output
	"	3.6MC	"	Tune for maximum output.	"	A11	Adjust for satisfactory sensitivity over entire upper portion of band.
	"	1.75MC	"	"	"	A12	Rock tuning cap. and adjust for maximum output. Recheck A10 & A11.

HOWARD W. SAMS & CO., INC. **Indianapolis Indiana**

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed."
"Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1947 by Howard W. Sams & Co., Inc., Indianapolis, Indiana, U. S. A. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc."

PARTS LIST AND DESCRIPTIONS

JEFFERSON-TRAVIS
MODEL MR-3

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: JEFFERSON-TRAVIS PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	Converter	1LA6	1LA6	7AK	
2	1st IF Amp.	1LN5	1LN5	7AO	
3	2nd IF Amp.	1LN5	1LN5	7AO	
4	Det.-AVC-AF	1LH4	1LH4	5AG	
5	Power Output	3LF4	3LF4	6BB	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: JEFFERSON-TRAVIS PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
6A	50	150		PRSA150-50-	EZ5515	2N521	M-2x50-150	TA-505	Filter - Green
B	50	150		50					" - Red
7	100	25		PRS25-100	BRH251	TC2501	M-100-25	UHC-102	Filament Bypass
8	.05	400		484-05	DT4S5	TP426	S-4-05	TC-15	Line Filter
9	.002	600		684-002	DT6D2	TP405	S-6-002	TC-22	Output Plate Bypass
10	.002	600		684-002	DT6D2	TP405	S-6-002	TC-22	Audio Coupling
11	.1	200		484-.1	DT4P1	TP428	S-4-1	TC-1	Audio Plate Decoup.
12	.01	600		684-01	DT6S1	TP410	S-6-01	TC-11	Audio Coupling
13	.1	200		484-.1	DT4P1	TP428	S-4-1	TC-1	Filament Bypass
14	.25	200		484-.25	DT4P25	TP430	S-4-25	TC-2	" "
15	.01	200		484-01	DT4S1	TP421	S-4-01	TC-11	AVC Filter
16	.05	400		484-05	DT4S5	TP426	S-4-05	TC-15	Conv. Screen Bypass
17	.25	200		484-.25	DT4P25	TP430	S-4-25	TC-2	Line Isolation
18	.1	200		484-.1	DT4P1	TP428	S-4-1	TC-1	AVC Filter
19	100	500		1468-0001	5W5T1	MC235	MO.5-31	1FM-31	Diode Filter
20	100	500		1468-0001	5W5T1	MC235	MO.5-31	1FM-31	" "
21	100	500		1468-0001	5W5T1	MC235	MO.5-31	1FM-31	Osc. Grid Capacitor

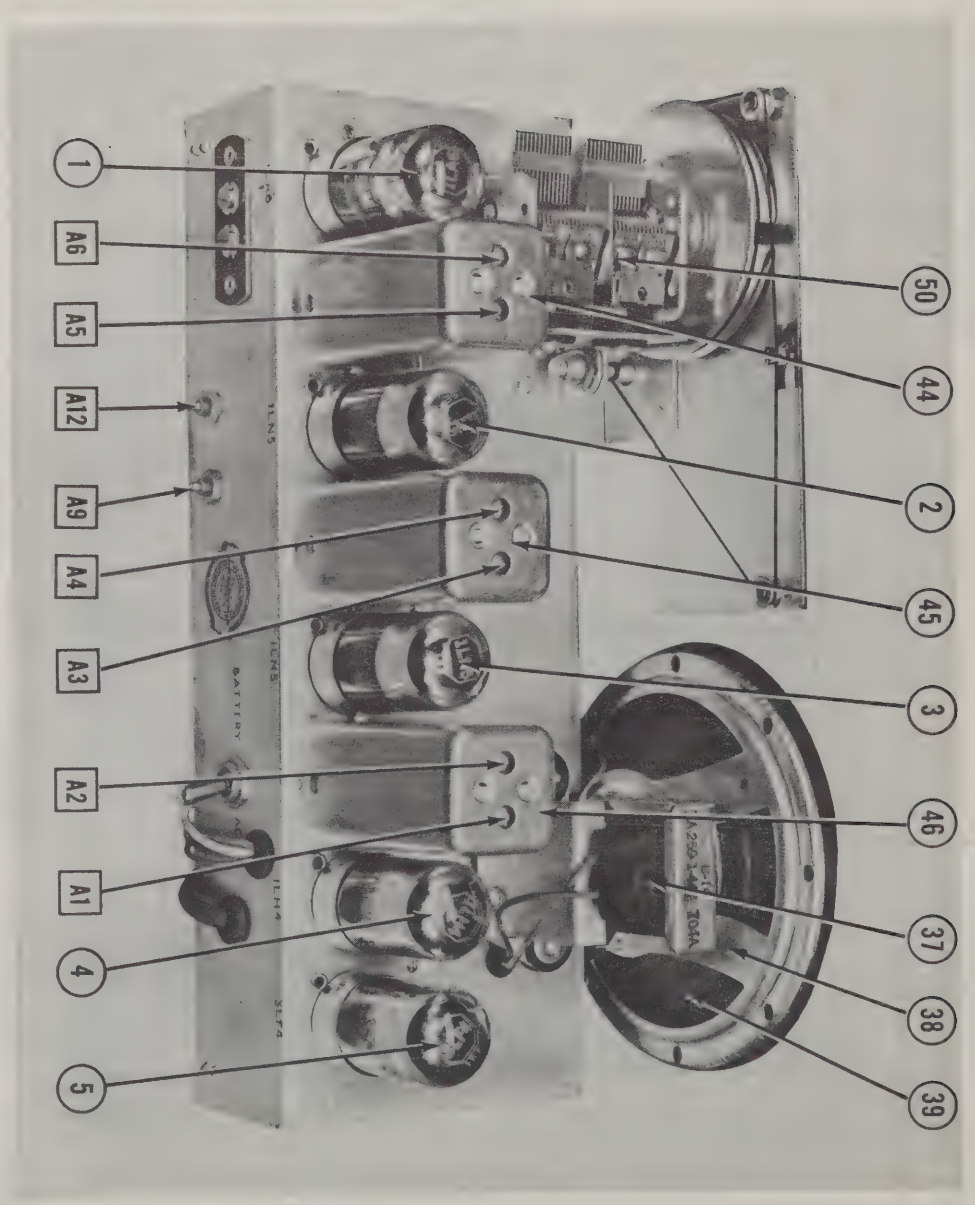
CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: JEFFERSON-TRAVIS PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
22A	1 Meg.	1		MR53	D13-137	M-63-Z	Volume Control
B	Shaft			Not Req.	A	Not Req.	Attach to 22A per instructions
C	Switch			M27	42	SW-A2	" " " " "

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: JEFFERSON-TRAVIS PART No.	REPLACEMENT DATA: IRC PART No.	IDENTIFICATION CODES
23	2.2 Meg.	½		BTS-2.2 Meg.	Red-Red-Grn. AVC Network
24	100KΩ	½		BTS-100K	Br.-Blk.-Yl. Oscillator Grid
25	47KΩ	½		BTS-47K	Yl.-Vi.-Or. Converter Screen Dropping
26	2 Meg.	½		BTS-2.2 Meg.	Red-Blk.-Grn. AVC Network
27	470KΩ	½		BTS-470K	Yl.-Vi.-Yl. IF Grid
28	82KΩ	½		BTS-82K	Gray-Red-Or. Diode RF Filter
29	4.7 Meg.	½		BTS-4.7 Meg.	Yl.-Vi.-Grn. AF Grid
30	1 Meg.	½		BTS-1 Meg.	Br.-Blk.-Grn. AF Plate Load
31	100KΩ	½		BTS-100K	Br.-Blk.-Yl. AF Plate Decoupling
32	470KΩ	½		BTS-470K	Yl.-Vi.-Yl. Output Grid
33	240Ω	½		BW-½-240	Red-Yl.-Br. Filament String
34	2000Ω	10		AB-2000	Filament String
35	600Ω	5		AB-600	Filter
36	47KΩ	½		BTS-47K	Yl.-Vi.-Or. IF Plate Dropping

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		JEFFERSON-TRAVIS PART No.	STANCOR PART No.	THORDAR'N PART No.		
	PRI.	SEC.	PRI.	SEC.					
37	7800Ω	4Ω	380Ω	.65Ω		A-3878*	T22S47*		*Bend mounting tabs down, file out slots and mount on original bracket.

SPEAKER

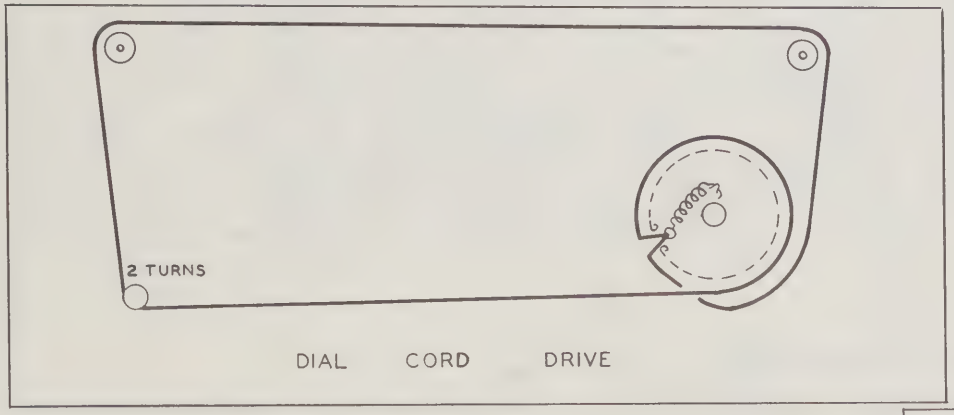
ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			JEFFERSON TRAVIS PART No.	JENSEN PART No.		
	FIELD	VC IMP.		ST-105†		†Fabricate new mounting bracket.
38	PM	4Ω		Mod. P5-X		
	CONE DIA.	VC DIA.				
39	4-3/4"	1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.			

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA	
		PRI.	SEC.	JEFFERSON-TRAVIS PART No.	MEISSNER PART No.
40	Loop Ant.		.2Ω		
41	Loop Load Coil		2Ω		
42	BC Osc. Coil		3Ω		14-1040
43	SW " "		1Ω		14-1043
44	Input IF	17Ω	18Ω		16-6658
45	Inter. IF	17Ω	17Ω		16-6659
46	Output IF	20Ω	20Ω		16-6660

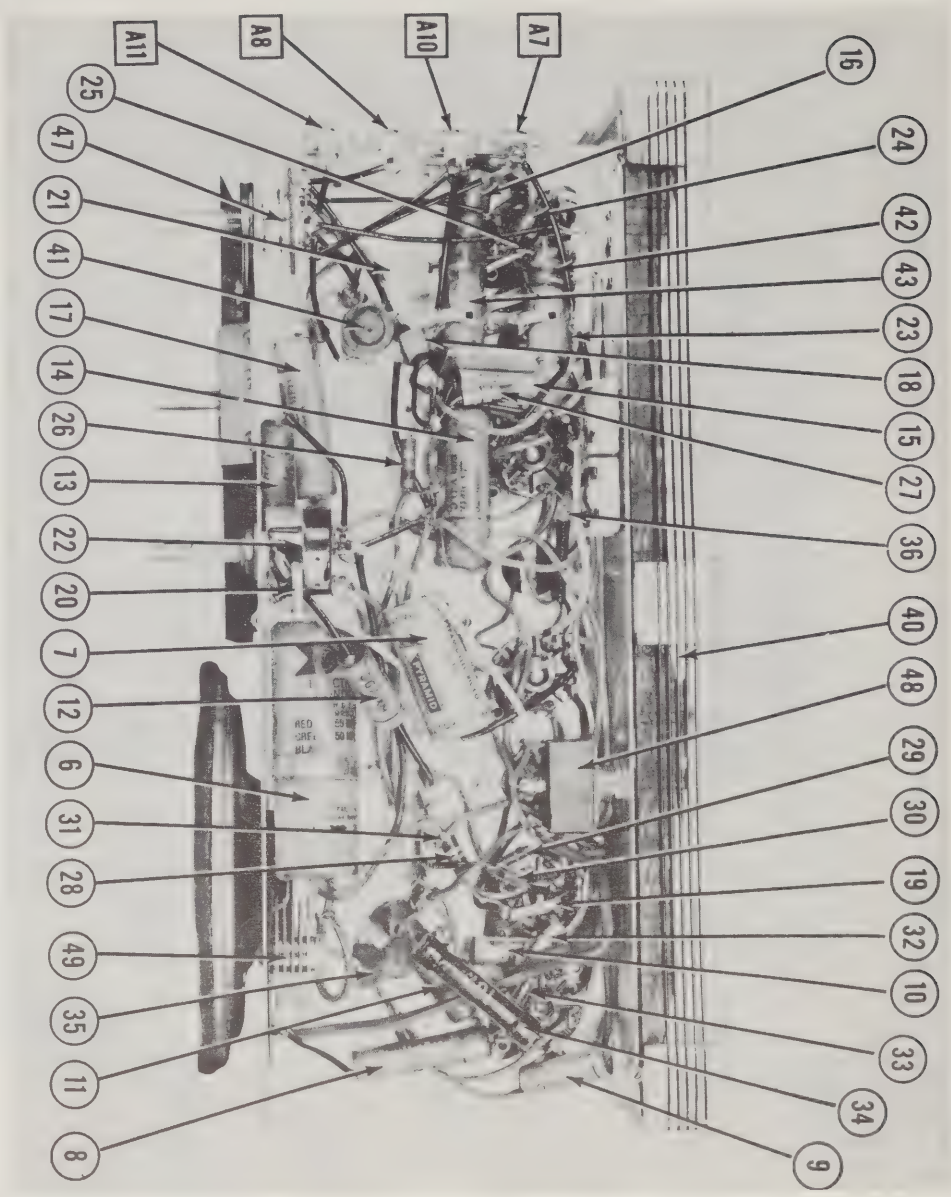
MISCELLANEOUS

ITEM No.	PART NAME	JEFFERSON-TRAVIS PART No.	NOTES
47	Bandswitch		
48	Change-Over Sw.		AC-DC-Batt. Selector
49	Rectifier		Selenium
50	2 Gang Var. Cap		13-483 MMF (each section)
	"A" Batteries		(2) Eveready #746
	"B" Batteries		(2) Eveready #482



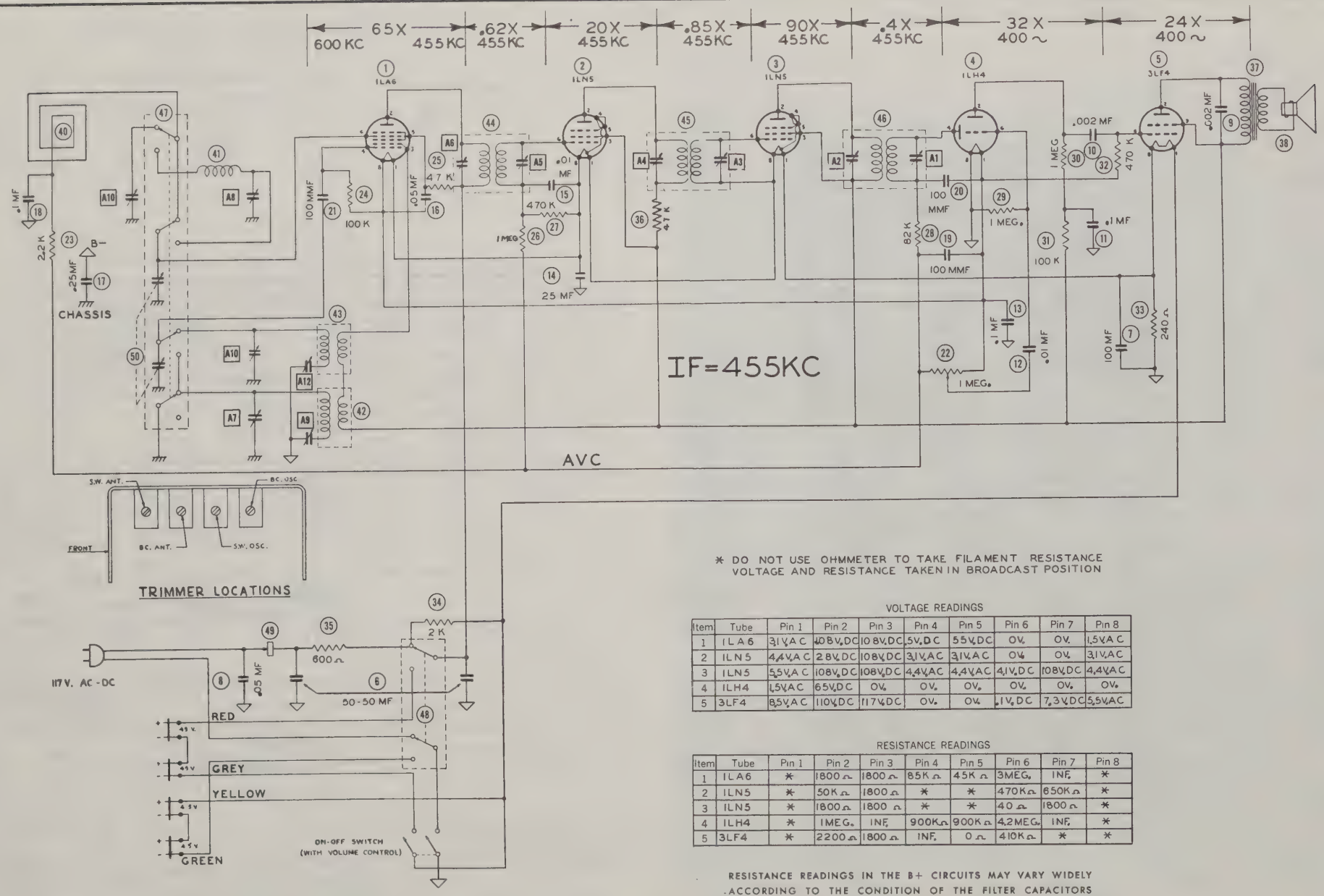
DIAL CORD DRIVE

CHASSIS—BOTTOM VIEW



JEFFERSON-TRAVIS MODEL MR-3

JEFFERSON-TRAVIS MODEL MR-3



* DO NOT USE OHMMETER TO TAKE FILAMENT RESISTANCE VOLTAGE AND RESISTANCE TAKEN IN BROADCAST POSITION

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	1LA6	3.1V.AC	40.8V.DC	108V.DC	5V.DC	55V.DC	0V.	0V.	1.5V.AC
2	1LN5	4.4V.AC	28V.DC	108V.DC	3.1V.AC	3.1V.AC	0V.	0V.	3.1V.AC
3	1LN5	5.5V.AC	108V.DC	108V.DC	4.4V.AC	4.4V.AC	4.1V.DC	108V.DC	4.4V.AC
4	1LH4	1.5V.AC	65V.DC	0V.	0V.	0V.	0V.	0V.	0V.
5	3LF4	8.5V.AC	110V.DC	117V.DC	0V.	0V.	.1V.DC	7.3V.DC	5.5V.AC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	1LA6	*	1800 Ω	1800 Ω	85K Ω	45K Ω	3MEG.	INF.	*
2	1LN5	*	50K Ω	1800 Ω	*	*	470K Ω	650K Ω	*
3	1LN5	*	1800 Ω	1800 Ω	*	*	40 Ω	1800 Ω	*
4	1LH4	*	1MEG.	INF.	900K Ω	900K Ω	4.2MEG.	INF.	*
5	3LF4	*	2200 Ω	1800 Ω	INF.	0 Ω	410K Ω	*	*

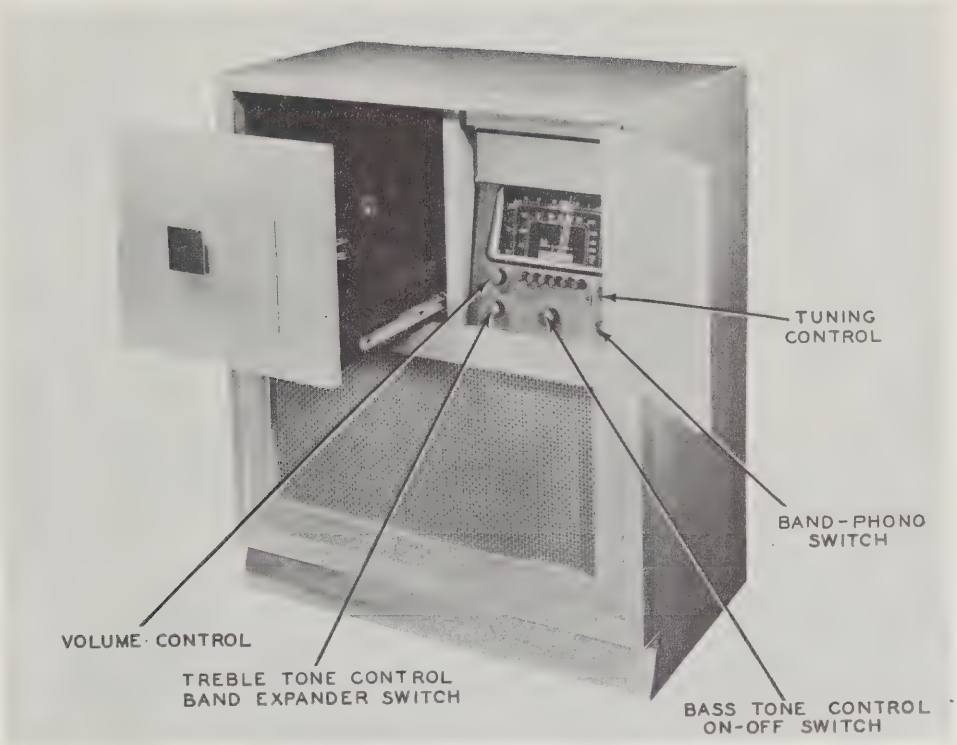
RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. **DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.**
2. **Socket connections are shown as bottom views.**
3. **Measured values are from socket pin to common negative.**
4. **Line voltage maintained at 117 volts for voltage readings.**
5. **Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.**
6. **Volume control at maximum, no signal applied for voltage measurements.**

MAGNAVOX
CHASSIS MODELS CR-198 A, B, C



MAGNAVOX MODEL 154B MODERN SYMPHONY

TRADE NAME	Magnavox, Model 154B Modern Symphony (Chassis Models CR-198A,-B,-C)
MANUFACTURER	Magnavox Co., 2131 Bueter Rd., Fort Wayne, Indiana
TYPE SET	AC Operated Phono-Radio Combination Superheterodyne-Self Contained Loop Antenna
TUBES (TEN)	Types, 6SK7 RF Amp., 6SA7 Converter, 6SK7 IF Amp., 6J5GT 2nd Det.-AVC, 6U5/6G5 Tuning Eye, 6J5 1st Audio, 6SN7GT 2nd AF-Phase Inv., (2) 6L6GA Power Output, 5U4G Rectifier.
POWER SUPPLY	110-120 Volts AC — RATING 1.28 Amp. @ 117 Volts AC
TUNING RANGE—BROADCAST	525-1630KC — **SHORT WAVE** 4.95-18.4MC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

After receiver is mounted in cabinet turn selectivity switch to "sharp", change link on ant. terminal board to loop position and tune in weak station near 1400KC. Adjust A13 for maximum output. To set pointer, turn tuning capacitor fully closed and set pointer to last reference mark at low frequency end of dial. Selectivity switch should be in "sharp position" for all alignment steps with exception of 10KC filter adjustment. (Last step). Volume control at maximum position. Output of signal generator should be no higher than necessary to obtain output reading. Use an insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
250MMF.	High side to Pin 5 (osc. grid) of 6SA7. Low side to chassis.	455KC	BC	Low freq. end of dial.	Across voice coil	A1,A2, A3, A4.	Adjust for maximum output.
250MMF.	High side to ant. terminal. Low side to chassis.	600KC	"	600KC	"	A5	Set link on ant. terminal board for ant. operation. Rock tuning capacitor and adjust for maximum output.
250MMF.	"	1400KC	"	1400KC	"	A6	Adjust for maximum output.
250MMF.	"	"	"	Tune for maximum output.	"	A7,A8	Adjust for maximum output. Repeat last three steps.
400Ω	"	15MC	SW	15MC	"	A9	Adjust for maximum output. If two peaks are obtained use the one with maximum capacity.
400Ω	"	"	"	Tune for maximum output.	"	A10,A11	Rock tuning cap. and adjust for maximum output.
	High side to phono input socket. Low side to chassis.	10000 CPS (Audio)	Phono	High freq. end of dial.	"	A12	Adjust for minimum output. Selectivity switch should be in full range position

HOWARD W. SAMS & CO., INC. **Indianapolis Indiana**

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed." "Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1947 by Howard W. Sams & Co., Inc., Indianapolis, Indiana, U. S. A. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc."

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: MAGNAVOX PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	RF Amp.	6SK7	6SK7	8N	
2	Converter	6SA7	6SA7	8R	
3	IF Amp.	6SK7	6SK7	8N	
4	2nd Det.-AVC	6J5GT	6J5GT	6Q	
5	Tuning Eye	6U5/6G5	6U5/6G5	6R	
6	1st Audio	6J5	6J5	6Q	
7	2nd AF Phase Inv	6SN7GT	6SN7GT	8BD	
8	Power Output	6L6GA	6L6GA	7AC	
9	Power Output	6L6GA	6L6GA	7AC	
10	Rectifier	5U4G	5U4G	5T	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: MAGNAVOX PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
11A	30	450	27002302	AF6J	UP6CJ47*	FP390*	DY-2x20-450	EL-344*	■ Filter
B	10	450		PRS450/10					▲ "
12A	10	450	27002306	AF22J4A	UP4CJ4†	FP332†	DY-10-450/25-50	EL-202†	■ "
B	20	25							▲ Cath. Bypass
13A	10	450	27002306	AF22J4A	UP4CJ4†	FP332†	DY-10-450/25-50	EL-202†	■ Filter
B	20	25							▲ Cath. Bypass
14	20	25	270027G2	PRS25-25	BR202A	TC26	M-25-25	TA-25	" "
15	.02	600	25012903	684-02	DT6S2	TP412	S-6-02	TC-12	Line Bypass
16	.02	600	25012903	684-02	DT6S2	TP412	S-6-02	TC-12	Motor Isolation
17	.02	600	25012903	684-02	DT6S2	TP412	S-6-02	TC-12	Line Bypass
18	.01	600	250152G38	684-01	DT6S1	TP410	S-6-01	TC-11	Tone Compensation
19	.01	200	250152G18	484-01	DT4S1	TP421	S-4-01	TC-11	Tone Compensation
20	.03	400	250152G25	484-03	DT4S3	TP424	S-4-03	TC-13	Audio Coupling
21	.1	400	250152G22	484-.1	DT4P1	TP428	S-4-1	TC-1	Audio Coupling
22	.01	400		484-01	DT4S1	TP421	S-4-01	TC-11	Tone Compensation ‡
23	.01	600	250152G38	684-01	DT6S1	TP421	S-6-01	TC-11	Audio Coupling ‡
24	.1	400	250152G22	484-.1	DT4P1	TP428	S-4-1	TC-1	RF Bypass Pwr. Supp.
25	.01	200	250152G18	484-01	DT4S1	TP428	S-4-01	TC-11	Audio Coupling
26	.1	200	250152G13	484-.1	DT4P1	TP428	S-4-1	TC-1	IF Screen Bypass
27	.05	200	250152G15	484-05	DT4S5	TP426	S-4-05	TC-15	IF Cath. Bypass
28	.05	200	250152G15	484-05	DT4S5	TP426	S-4-05	TC-15	Converter Cath. Bypass
29	.05	200	250152G15	484-05	DT4S5	TP426	S-4-05	TC-15	AVC Filter
30	.05	200	250152G15	484-05	DT4S5	TP426	S-4-05	TC-15	RF Cath. Bypass
31	.05	200	250152G15	484-05	DT4S5	TP426	S-4-05	TC-15	AVC Filter
32	.01	600	250152G38	684-01	DT6S1	TP421	S-6-01	TC-11	Ant. Coupling
33	1000	300	250160G82	1468-001	1W5D1	MC255	MW.5-21	1FM-21	Output Grid Filter
34	1800	300	250160G67						Feedback
35	330	500	250159G88	1468-0003	5W5T3	MC241	MO.5-333	1FM-33	Audio Coupling
36	220	500	250159G100	1468-0002	5W5T2	MC237	MO.5-322	1FM-32	Tone Compensation
37	100	500	250159G82	1468-0001	5W5T1	MC235	MO.5-31	1FM-31	Phono Coupling§
38	680	500	250159G131						Tone Compensation ♦
39	220	500	250159G100	1468-0002	5W5T2	MC237	MO.5-322	1FM-32	Diode Filter
40	100	500	250159G98	1468-0001	5W5T1	MC235	MO.5-31	1FM-31	" "
41	50		250088G24	1468-00005	5W5Q5	MC225	MO.5-45	1FM-45	Osc. Grid Capacitor
42	20		250088G32						Fixed Trimmer
43	4700	500	250161G5						RF Coupling
44	4700	500	250161G5						" "
45	490	500	250085G32						Fixed Padder

†Do not use one section.
*Parallel sections for desired capacity.
§Chassis CR-198A uses 680MMF in this application.
‡Some models use .005 MFD in this application.
#May be .02 or .015 in some models.
♦Chassis model CR-198A uses 330MMF in this application.

PARTS LIST AND DESCRIPTIONS (Continued)

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: MAGNAVOX PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
46A	1 Meg.	1	220044G23	MR53	D13-137	M-63-Z	Volume Control
B	Shaft		Not Req.	Not Req.	A	Not Req.	Attach to 46A per instructions
47	1 Meg.	1	220071G2				Treble Control & Band Expander SW.
48A	150KΩ	1	220045G6	MR42	D13-128	M-51-Z	Bass Control
B	Shaft		Not Req.	Not Req.	A	Not Req.	Attach to 48A per instructions
C	Switch		" "	M26	41	SW-A	" " " " "

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: PART No.	IRC PART No.	IDENTIFICATION CODES
49	1 Meg.	½	230084G98	BTS-1 Meg.	Br.-Blk.-Grn. RF Grid
50	470Ω	½	230084G11	BTS-470	Yl.-Vi.-Br. RF Cathode
51	1 Meg.	½	230084G98	BTS-1 Meg.	Br.-Blk.-Grn. AVC Network
52	10KΩ	½	230084G19	BTS-10K	Br.-Blk.-Or. RF Coil Shunt BC
53	1 Meg.	½	230084G98	BTS-1 Meg.	Br.-Blk.-Grn. Converter Grid
54	680KΩ	½	230084G30	BTS-680K	Blue-Gray-Yl. AF Grid-See Note 1
55	47KΩ	½	230084G23	BTS-47K	Yl.-Vi.-Or. Tone Compensation
56	150Ω	½	23008408	BW-½-150	Br.-Grn.-Br. Converter Cathode
57	22KΩ	½	230084G21	BTS-22K	Red-Red-Or. Oscillator Grid
58	2200Ω	½	230084G15	BTS-2200	Red-Red-Red IF Cathode
59	470Ω	½	230084G11	BTS-470	Yl.-Vi.-Br. IF Cathode
60	15KΩ	2	230086G20	BT-2-15K	Br.-Grn.-Or. Screen Bleeder
61	10KΩ	3	24003502	AB-10K	Screen Dropping
62	22KΩ	½	230084G21	BTS-22K	Red-Red-Or. Diode RF Filter
63	150KΩ	½	230084G26	BTS-150K	Br.-Grn.-Yl. Diode Load
64	1 Meg.	½	230084G98	BTS-1 Meg.	Br.-Blk.-Grn. AVC Network
65	4700Ω	½	230084G17	BTS-4700	Yl.-Vi.-Red AF Cathode
66	150KΩ	½	230084G26	BTS-150K	Br.-Grn.-Yl. AF Plate Load
67	4700Ω	½	230084G17	BTS-4700	Yl.-Vi.-Red Filter-See Note 2
68	1000Ω	2	230064G62	BT-2-1000	Br.-Blk.-Red Filter
69	560KΩ	½	230084G95	BTS-560K	Grn.-Blue-Yl. Tuning Eye Plate Load
70	100Ω	½	23008407	BW-½-100	Br.-Blk.-Br. Parasitic Suppressor
71	82KΩ	½	230084G85	BTS-82K	Gray-Red-Or. Tone Compensation
72	47KΩ	½	230084G23	BTS-47K	Yl.-Vi.-Or. AF Driver Grid
73	1500Ω	½	230084G14	BTS-1500	Br.-Grn.-Red AF Driver Cathode
74	100KΩ	½	230084G25	BTS-100K	Br.-Blk.-Yl. AF Driver Plate Load
75	100KΩ	½	230084G25	BTS-100K	Br.-Blk.-Yl. Phase Inverter Plate Load
76	15KΩ	½	230084G187	BTS-15K	Br.-Grn.-Or. Phase Inverter Grid
77	4700Ω	½	230084G17	BTS-4700	Yl.-Vi.-Red Decoupling
78	220KΩ	½	230084G215	BTS-220K	Red-Red-Yl. Output Grid
79	270KΩ	½	230084G91	BTS-270K	Red-Vi.-Yl. Output Grid
80	1 Meg.	½	230084G98	BTS-1 Meg.	Br.-Blk.-Grn. Tone Compensation
81	15KΩ	1	230085G20	BTA-15K	Br.-Grn.-Or. Tone Compensation
82	125KΩ	5	240021G11	ABA-150	Output Cathode

Note 1 - Not used in chassis CR198A. Some models use 1 Meg. and 2.2 Meg. in parallel.
Note 2 - Some models use 22KΩ in this application. Replacement same as #57.

TRANSFORMER (POWER)

ITEM No.	RATING: PRI.	RATING: SEC. 1	RATING: SEC. 2	RATING: SEC. 3	REPLACEMENT DATA: MAGNAVOX PART No.	STANCOR PART No.	THORDARSON PART No.	
83	117V AC	740V CT @ 1.28A	5.0V AC @ .170A	6.3V AC @ 2.8A	@ 4.5A	300035G1	P-6314	T22R07

TRANSFORMER (OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: MAGNAVOX PART No.	STANCOR PART No.	THORDAR'N PART No.		INSTALLATION NOTES
84	11000Ω CT	2.6Ω	200Ω CT	.45Ω	Part of 582847	A-3830†† **	T22S64††		††Drill new mounting holes. **Solder terminal strip to frame of replacement unit.

PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA: MAGNAVOX PART No.	JENSEN PART No.		INSTALLATION NOTES
	FIELD RES.	VC IMP.				
85	260Ω	5.2Ω	582847			
	CONE DIA.	VC DIA.				
86	11½"	1"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.			
	FIELD RES.	VC IMP.				
87	270Ω	5.3Ω	582815			
	CONE DIA.	VC DIA.				
88	11½"	1"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.			

R F COILS

ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA: MAGNAVOX PART No.	MEISSNER PART No.	
89	Loop Ant.		1.5Ω			
90	SW Ant.					
91A	BC Ant.Coil	24Ω	4Ω	360273G1		91A & 91B wound on same form
B	SW " "	.5Ω	.1Ω			
92A	BC RF Coil	24Ω	4Ω	360274G1		92A & 92B wound on same form
B	SW " "	.5Ω	.1Ω			
93A	BC Osc.Coil	.5Ω	4.5Ω	360275G1		93A & 93B wound on same form
B	SW " "		.1Ω			
94	10KC Filter Coil		500Ω	360278G1		
95	Input IF	7Ω	7Ω	360024G1		
96	Output IF	7.5Ω	7.5Ω	360025G1	16-6660	

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA: MAGNAVOX PART No.		INSTALLATION NOTES
97	Bayonet	6-8	.250	Blue			Type 44
98	"	6-8	.250	"			" "

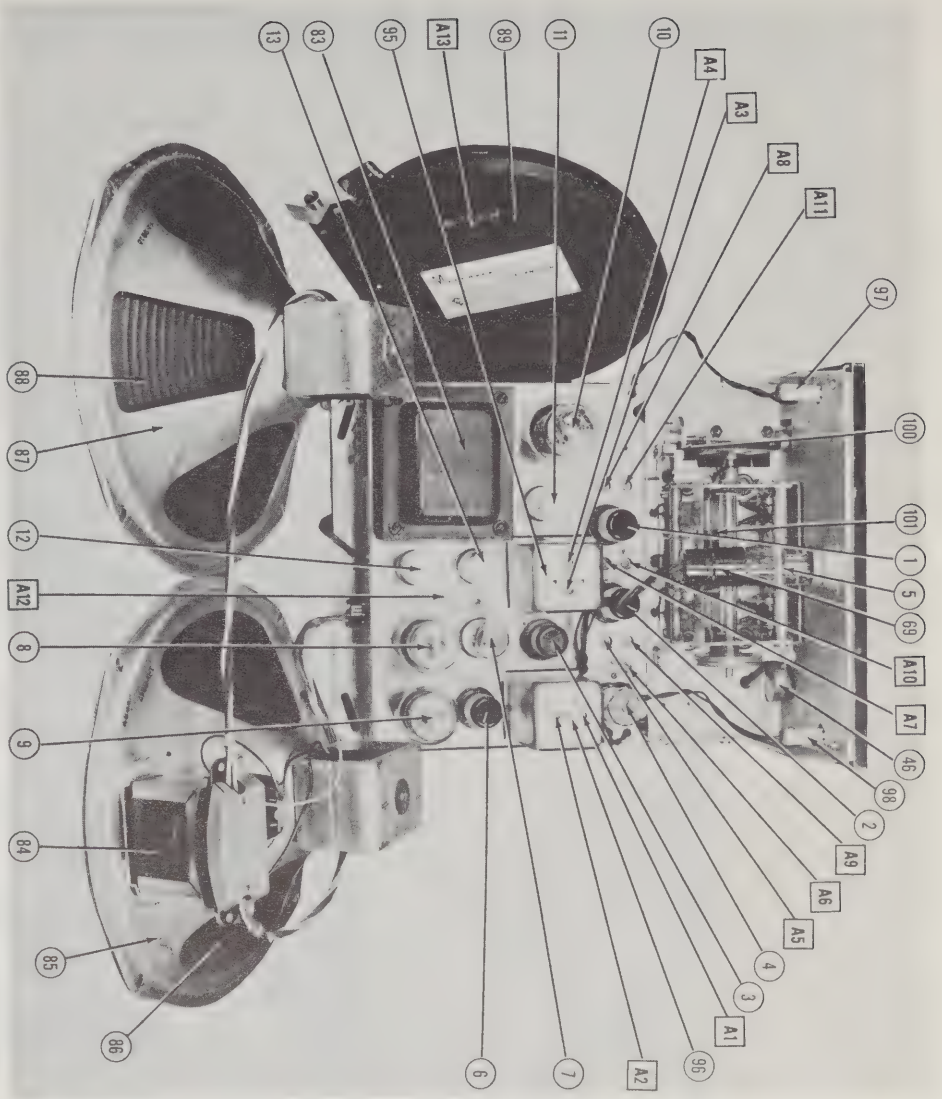
MISCELLANEOUS

ITEM No.	PART NAME	MAGNAVOX PART No.	NOTES
99	Bandswitch	160172G1	
100	Muting Switch		
101	3 Gang Var.Cap.	260071G1	(10-553MMF) each section
	Dial Glass Assy	150291G1	
A5, A9	Trimmer Strip	260021G1	BC Osc. Padder; SW Osc. Trimmer
A6	Trimmer Cap.	260067G3	BC Osc. Trimmer
A7, A10	Trimmer Strip	260021G1	BC RF Adj.; SW RF Adj.
A8, A11	Trimmer Strip	260021G1	BC Ant. Adj.; SW Ant. Adj.
A12	Trimmer Cap.	250008G1	10KC Audio Filter Adj.

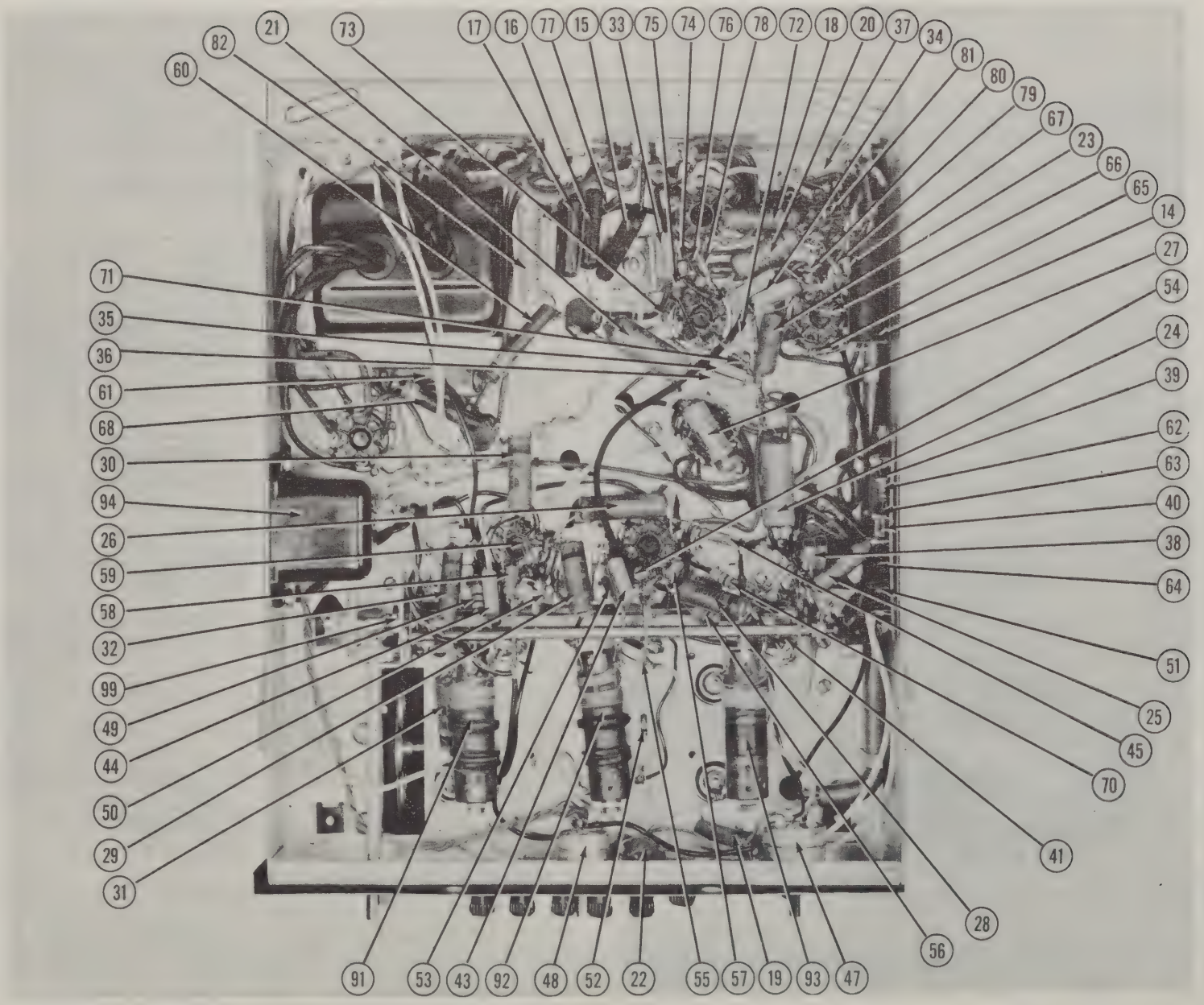
PUSHBUTTON ADJUSTMENTS

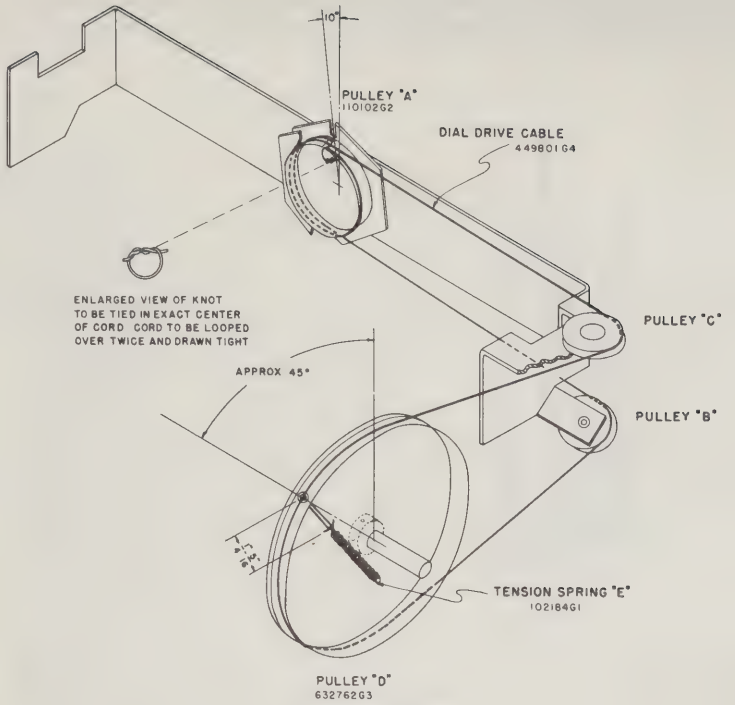
1. Turn receiver on and allow it to warm up for about 15 minutes. Turn selectivity switch to "sharp tune" position. Loosen all buttons a few turns.
2. Make a list of desired stations ranging from high end of band to low end of band.
3. Manually tune in 1st station and push in manual tuning control so that the station cannot be detuned.
4. Push 1st button on right in completely and tighten firmly.
5. To check accuracy of setting, detune with manual tuning control. Then retune with push-button. If setting is off repeat last three steps.
6. To set up the remaining buttons follow the same procedure as outlined above setting up the buttons from right to left.

CHASSIS—TOP VIEW



CHASSIS—BOTTOM VIEW





DIAL CORD REPLACEMENT

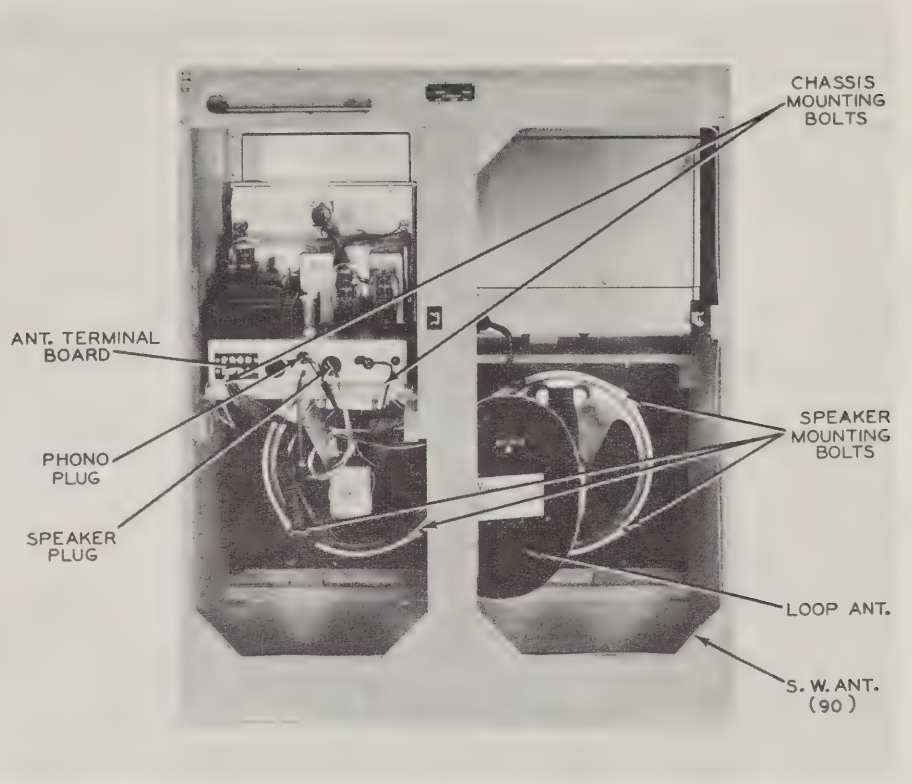
Rotate the brass pulley designated "A" in figure above until the dial pointer strikes the stop at the high frequency end of the dial calibration. In this condition the slot in pulley "A" should be approximately ten degrees to the left of being vertical-see figure above. If the slot in the pulley is in some other position under the above mentioned conditions, the pointer set screw is probably loose and has allowed the pointer to slip.

To correct this condition, first remove the glass dial and loosen the pointer screw. Then while holding pulley "A" so that its slot is approximately ten degrees to the left of vertical (when viewed from the rear) adjust the pointer until it is resting against the stop at the high frequency end of its travel. Then tighten the pointer set screw securely and replace the glass dial.

Completely unmesh the condenser gang and check the location of the hole or slot in pulley "D". If this hole is not approximately 45 degrees back from vertical as shown on figure above, loosen the two No. 6 Allen set screws in the hub of pulley "D" and slip the pulley on its shaft (while holding the condenser gang unmeshed) until the specified adjustment is obtained; then tighten one of the set screws securely. It will be shown later that this is a temporary setting. Next, tie a double knot in the exact center of a 25-inch length of dial cable and fold the cable back on itself so that the knot is at one end. The correct method for tying this knot is shown as an inset on figure above. Grasp the cable near the knotted end and slide it into the pulley slot so that the knot is against the inside rim of the pulley as shown in the sketch. The piece of cable nearest the dial frame should be wound in the direction shown for one-half turn then over the lower pulley "B", around the bottom of the large pulley "D" and into the hole. Pull the cable taut and wrap the end around the small hook on pulley "D" temporarily.

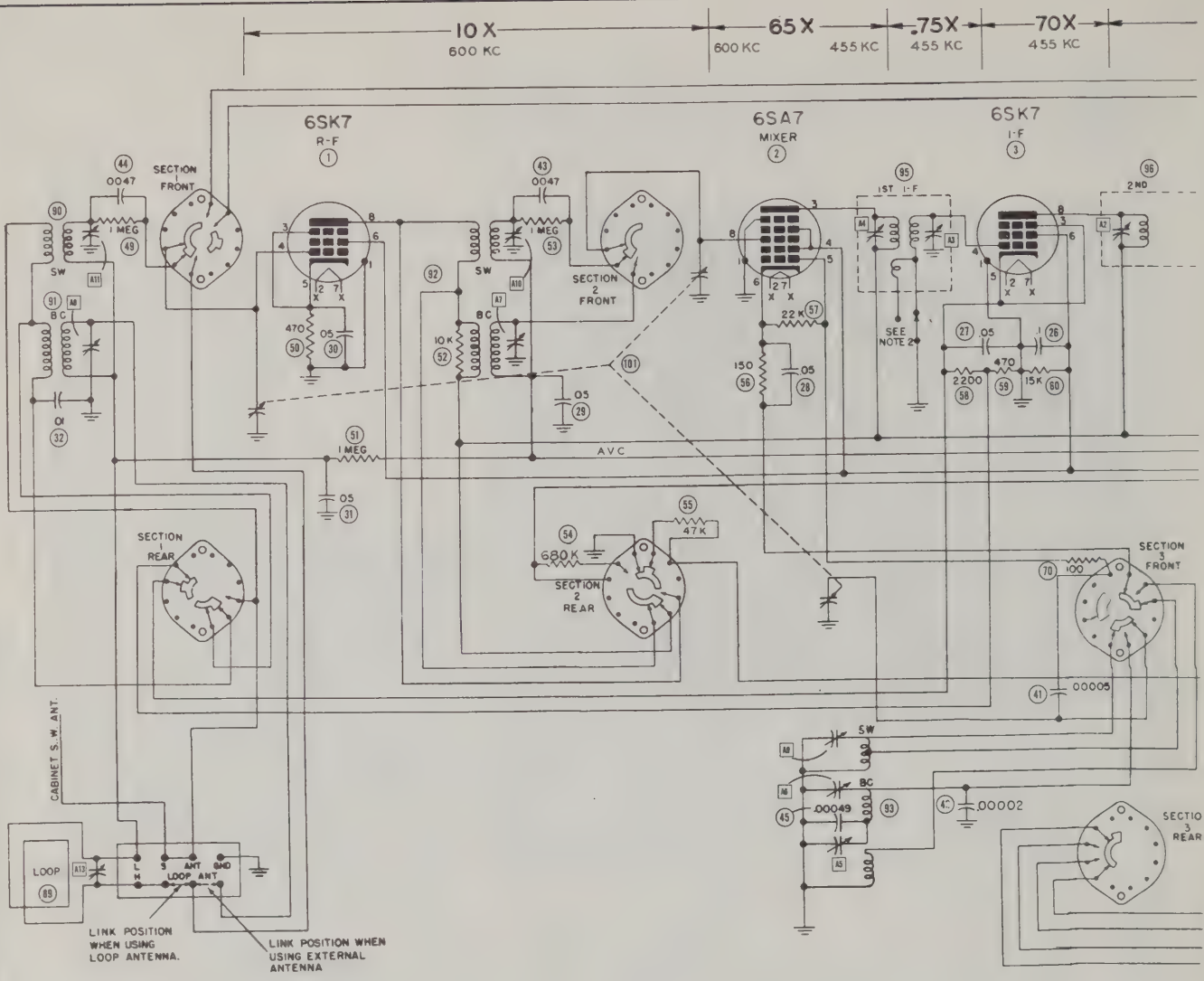
The remaining piece of cable should be wound around pulley "A" in the direction shown, for one complete turn, over the upper pulley "C", and over the top of pulley "D". Thread the end through the small hole in pulley "D" and pull both ends of the cable taut. With one end of tension spring "E" fastened to the hook on pulley "D" lace the two free ends of the cable through the opposite end of the spring and tie a knot at a point that will allow 1/4" to 5/16" of cable between the spring and the inside rim of pulley "D". Be sure to tie the knot around one coil of the spring in the manner shown.

Now with the condenser gang completely meshed, check the position of the dial pointer. If it is not in line with the last calibration mark at the low frequency end of the dial, loosen the set screw in pully "D" and turn it until the pointer is in the specified position. Be sure that the condenser gang does not move during this adjustment. Then tighten the two screws in pulley "D" securely completing the operation.



DISASSEMBLY INSTRUCTIONS

1. Remove five push-on type control knobs.
2. Remove loop ant. leads. White lead to L terminal and white-blk. to H terminal.
3. Remove cabinet ant. lead from S terminal.
4. Remove phono-motor plug.
5. Remove speaker plug.
6. Remove phono-pickup plug.
7. Remove FM tuner plug (if used).
8. Remove two Phillips head bolts and nuts mounting chassis to metal mounting plate.
9. Remove two hex head self-tapping screws holding chassis for shipment. Remove chassis.
10. Remove four Phillips head screws holding loop antenna brackets. Remove loop.
11. Remove 8 hex nuts and lock washers holding speakers to baffle. Remove speakers.



IF=455KC

I-F 455 KC

NOTES

1. BAND SWITCH SHOWN IN CLOCKWISE (SHORT WAVE) POSITION. THIS CONDITION OBTAINS WITH KNOB IN COUNTERCLOCKWISE POSITION.
2. BAND EXPANDER SWITCH SHOWN BENEATH FIRST I-F TRANSFORMER IS ACTUATED BY THE TREBLE CONTROL KNOB. SWITCH SHOWN IN SHARP TUNE POSITION.
3. ALL ELECTRICAL VALUES SHOWN ARE IN MICRO-FARADS OR OHMS UNLESS OTHERWISE SPECIFIED

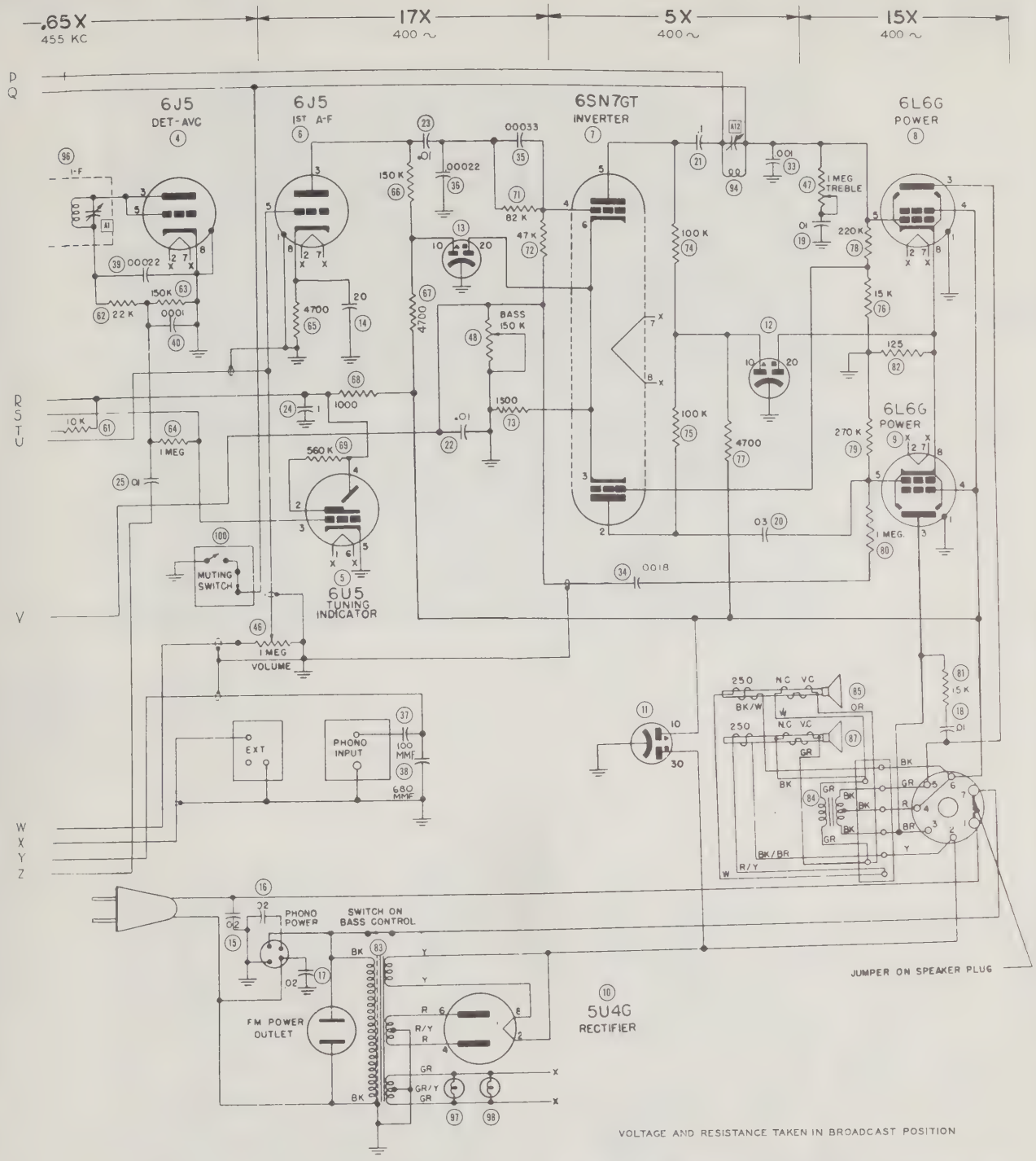
VOLTAGE AND RESISTANCE TAKEN IN BROADCAST POSITION

VOLTAGE READINGS

ITEM	TUBE	PIN 1	PIN 2	PIN 3	PIN 4	PIN 5	PIN 6	PIN 7	PIN 8
1	6SK7	0V.	3.1V.AC	3.8V.DC	-.05V.DC	3.8V.DC	9.5V.DC	3.1V.AC	270V.DC
2	6SA7	0V.	3.1V.AC	270V.DC	9.5V.DC	-1.4V.DC	1.6V.DC	3.1V.AC	-6V.DC
3	6SK7	0V.	3.1V.AC	6.9V.DC	0V.	6.9V.DC	9.5V.DC	3.1V.AC	270V.DC
4	6J5GT	0V.	3.1V.AC	-6V.DC	0V.	-6V.DC	0V.	3.1V.AC	0V.
6	6J5	0V.	3.1V.AC	120V.DC	0V.	0V.	300V.DC	3.1V.AC	5.4V.DC
7	6SN7GT	0V.	140V.DC	5.9V.DC	0V.	13.5V.DC	5.9V.DC	3.1V.AC	3.1V.AC
8	6L6GA	0V.	3.1V.AC	300V.DC	308V.DC	0V.	300V.DC	3.1V.AC	18V.DC
9	6L6GA	0V.	3.1V.AC	300V.DC	308V.DC	0V.	300V.DC	3.1V.AC	18V.DC
10	5U4G	0V.	412V.DC	0V.	370V.AC	0V.	370V.AC	0V.	412V.DC

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.



VOLTAGE AND RESISTANCE TAKEN IN BROADCAST POSITION

RESISTANCE READINGS

ITEM	TUBE	PIN 1	PIN 2	PIN 3	PIN 4	PIN 5	PIN 6	PIN 7	PIN 8
1	6SK7	0Ω	.1Ω	470Ω	2.3MEG.	470Ω	10KΩ	.1Ω	22KΩ
2	6SA7	0Ω	.1Ω	22KΩ	10KΩ	22KΩ	120Ω	.1Ω	1.3MEG.
3	6SK7	0Ω	.1Ω	2000Ω	6Ω	2000Ω	10KΩ	.1Ω	22KΩ
4	6J5GT	0Ω	.1Ω	162KΩ	INF.	162KΩ	INF.	.1Ω	0Ω
6	6J5	0Ω	.1Ω	190KΩ	1.2MEG.	850KΩ	28KΩ	.1Ω	4800Ω
7	6SN7	13KΩ	120KΩ	1700Ω	130KΩ	112KΩ	1700Ω	.1Ω	.1Ω
8	6L6GA	0Ω	.1Ω	22KΩ	22KΩ	220KΩ	28KΩ	.1Ω	115Ω
9	6L6GA	0Ω	.1Ω	22KΩ	22KΩ	250KΩ	38KΩ	.1Ω	115Ω
10	5U4G	INF.	22KΩ	INF.	48Ω	INF.	44Ω	INF.	22KΩ

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

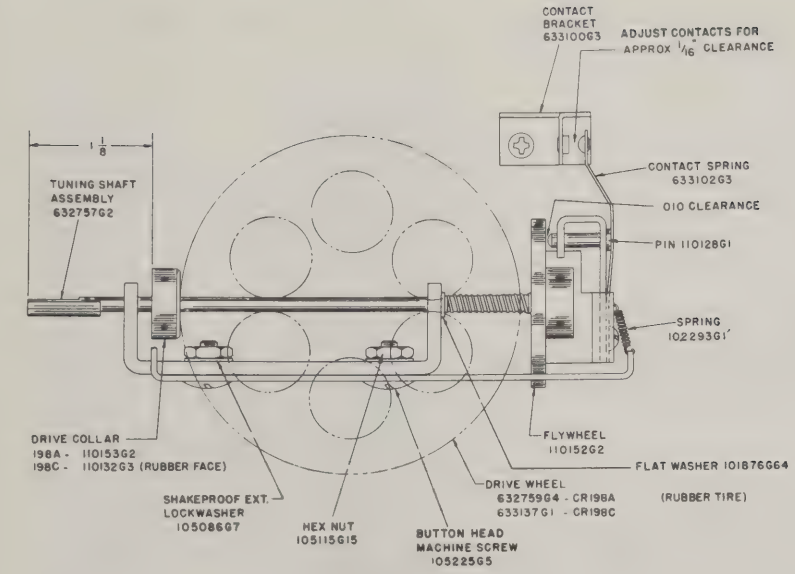


FIGURE A

CONDENSER GANG DRIVE ADJUSTMENTS

Whenever any of the mechanical parts in the condenser gang drive assembly require replacement due to rough handling or for any other reason, it is extremly important that clearances and adjustment shown on figures A and B are correct; otherwise, the tuning mechanism will be sluggish or it may slip during operation.

In reassembling the mechanism after any part was replaced, follow the procedure outlined below:

1. Assembly the Tuning Shaft, Drive Collar, Compression Spring and Flywheel in the order shown on figure B. The distance between the front of the Drive Collar and the front of the Tuning Shaft must be 1-1/8 inches as specified on figure A. Install the Flywheel on the rear of the Tuning Shaft and slide it forward until it nearly touches the edge of the Drive Wheel; then tighten one of the set screws in the Fylwheel hub. Insert a .010" gauge between the Flywheel and the Pin, and while holding the guage in this position, loosen the set screw in the Flywheel hub that was previously tightened. The Compression Spring should force the Flywheel back against the guage—when this occurs, tighten both set screws in the Flywheel hub.

2. Adjust the Muting Switch contact clearance by loosening the two screws in the Contact Bracket and sliding the bracket in the required direction until a 1/16" clearance is obtained. If this adjustment cannot be obtained in the manner prescribed, bend the Contact Bracket until proper clearance is realized

3. The Drive Wheel is properly located on its shaft when its edge nearest the hub is in line with the outside edge of the Drive Collar as shown on figure B. Two Allen set screws in the Drive Wheel hub provide a means of adjusting the position of this wheel.

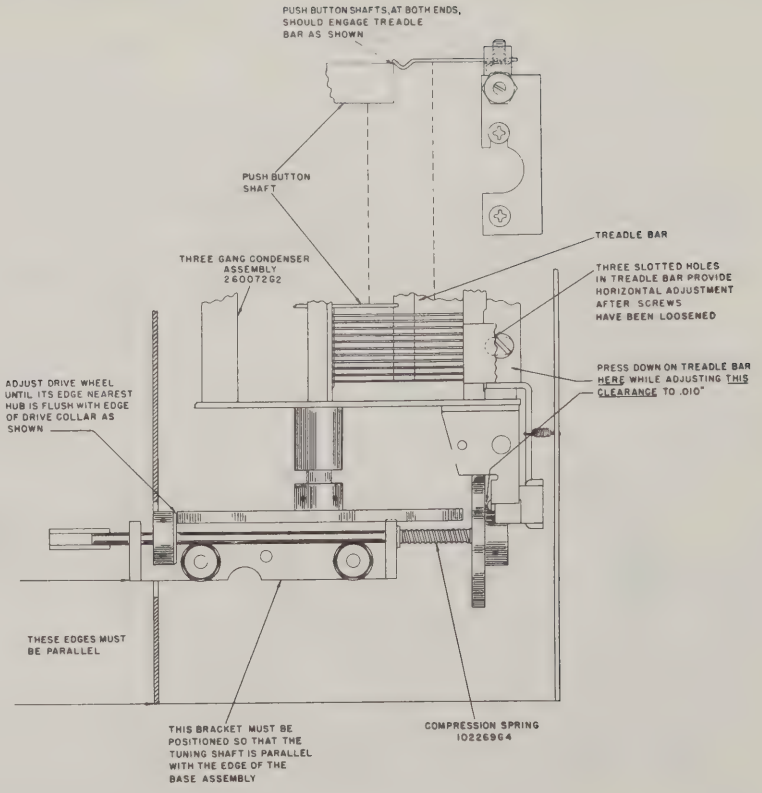
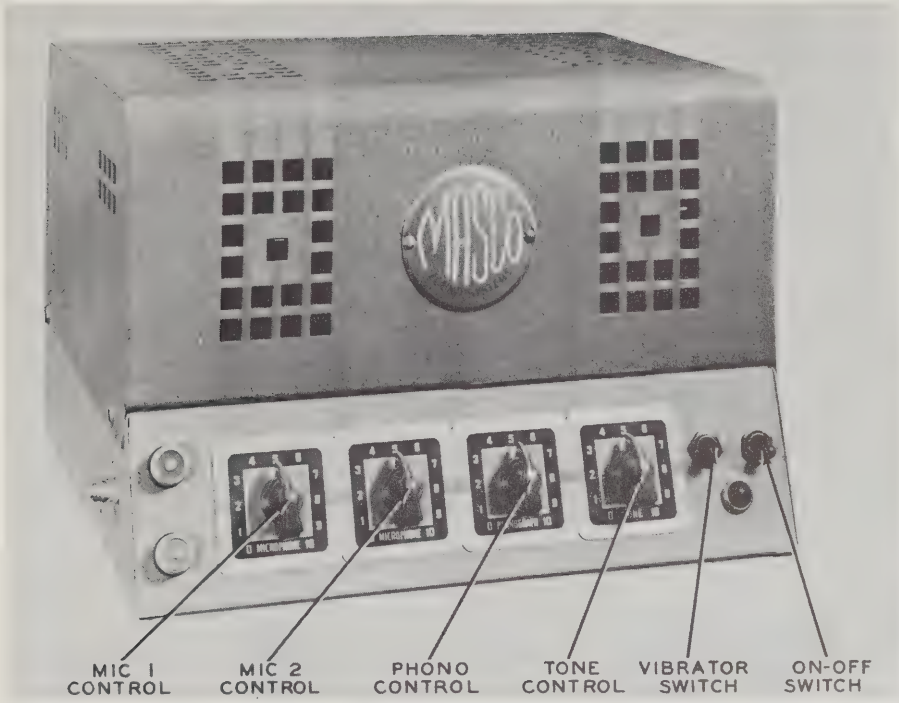

PUSH BUTTON SHAFTS, AT BOTH ENDS, SHOULD ENGAGE TREADLE BAR AS SHOWN
PUSH BUTTON SHAFT
TREADLE BAR
THREE GANG CONDENSER ASSEMBLY 26007262
THREE SLOTTED HOLES IN TREADLE BAR PROVIDE HORIZONTAL ADJUSTMENT AFTER SCREWS HAVE BEEN LOOSENED
PRESS DOWN ON TREADLE BAR HERE WHILE ADJUSTING THIS CLEARANCE TO .010"
ADJUST DRIVE WHEEL UNTIL ITS EDGE NEAREST HUB IS FLUSH WITH EDGE OF DRIVE COLLAR AS SHOWN
THESE EDGES MUST BE PARALLEL
THIS BRACKET MUST BE POSITIONED SO THAT THE TUNING SHAFT IS PARALLEL WITH THE EDGE OF THE BASE ASSEMBLY
COMPRESSION SPRING 102269G4

FIGURE B

4. When the adjustment outlined in paragraph 2 is correct, the proper contact clearance will automatically be obtained when the Muting Switch is to be "unmuted" while the push buttons are being set. While pressure is applied to any one of the push buttons while they are being set up, a pressure applied simultaneously to the Tuning Control knob will cause the Muting Switch contacts to open. Detailed instructions on setting up these push buttons are shown elsewhere in this Photofact Folder.

5. If the push button shafts at both ends do not engage the Treadle Bar as shown on figure B, the three screws in the Treadle Bar must be loosened and the Treadle Bar should be moved until the required condition is obtained.

MASCO
MODEL MC-25, MC-25 P



MASCO MODEL MC-25

TRADE NAME	Masco Model MC-25, MC-25P
MANUFACTURER	Mark Simpson Mfg. Co., Inc., 32-28 49th St., Long Island City, N.Y.
TYPE SET	AC Operated 3 Channel 7 Tube Amplifier
TUBES (SEVEN)	Types, 7B4 Mic. Amp., 7B4 Mic. Amp., 7N7 Mixer-Phono. Amp. 7N7 Phase Inv.-AF, (2) 6L6GA Power Output, 5U4G Rectifier.
POWER SUPPLY RATING	110-120 Volts AC or 6 Volts DC 1.35 Amp. @ 117V AC or 14 Amp. @ 6 Volts DC

CONTROLS SET AT MAXIMUM FOR VOLTAGE AND RESISTANCE READINGS

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	7B4	2.2V. AC	115V. DC	182V. DC	0V.	0V.	-.5V. DC	0V.	4.3V. AC
2	7B4	4.3V. AC	118V. DC	182V. DC	182V. DC	0V.	-.5V. DC	0V.	2.2V. AC
3	7N7	4.3V. AC	2.6V. DC	72 V. DC	0V.	0V.	72V. DC	2.6V. DC	2.2V. AC
4	7N7	2.2V. AC	4.8V. DC	133V. DC	0V.	0V.	133V. DC	4.8V. DC	4.3V. AC
5	6L6GA	0V.	2.2V. AC	400V. DC	340V. DC	0V.	0V.	4.3V. AC	26 V. DC
6	6L6GA	0V.	4.3V. AC	400V. DC	340V. DC	0V.	0V.	2.2V. AC	26V. DC
7	5U4G	0V.	430V. DC	0V.	380V. AC	430V. DC	380V. AC	0V.	430V. DC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	7B4	.1Ω	275KΩ	170 KΩ	INF.	INF.	15MEG.	0Ω	.1Ω
2	7B4	.1Ω	285KΩ	170KΩ	170KΩ	INF.	15 MEG.	0Ω	.1Ω
3	7N7	.1Ω	1000Ω	210 KΩ	235KΩ	415KΩ	210KΩ	1000Ω	.1Ω
4	7N7	.1Ω	1000Ω	210KΩ	10KΩ	550KΩ	210KΩ	1000Ω	.1Ω
5	6L6GA	0Ω	.1Ω	150KΩ	150 KΩ	95 KΩ	INF.	.1Ω	180Ω
6	6L6GA	0Ω	.1Ω	150 KΩ	150KΩ	95 KΩ	INF.	.1Ω	180Ω
7	5U4G	INF.	150 KΩ	0Ω	65Ω	150 KΩ	67Ω	INF.	150 KΩ

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

HOWARD W. SAMS & CO., INC. **Indianapolis Indiana**

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed." "Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1947 by Howard W. Sams & Co., Inc., Indianapolis, Indiana, U. S. A. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc."

PARTS LIST AND DESCRIPTIONS

MASCO
MODELS MC-2S, MC-2SF

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		MASCO PART No.	STANDARD REPLACEMENT		
1	Mic. Amp.	7B4	7B4	5AC	
2	Mic. Amp.	7B4	7B4	5AC	
3	Mixer-Phono Amp	7N7	7N7	8AC	
4	Phase Inv.-AF	7N7	7N7	8AC	
5	Power Output	6L6GA	6L6GA	7AC	
6	" "	6L6GA	6L6GA	7AC	
7	Rectifier	5U4G	5U4G	5T	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT	MASCO PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	
8	8	600		GL600-8	KR608	HS693	D-8-600	AP-86	Filter
9	8	600		GL600-8	KR608	HS693	D-8-600	AP-86	"
10A	8	450		PR8A450-8-8	EZ8845	2N518	M-2x8-450	UT-88	" - Red
B	8	450							" - "
11	8	450		PR8450-8	BR845	TC71	M-8-450	UT-8	"
12	10	50		PR850-10	BR105	TC32	M-10-50	TA-510	Cath. Bypass
13	.1	600		684-.1	DT6P1	TP418	S-6-1	TC-1	Filament Bypass
14	.5	600		684-.5	DT6P5	TP432	S-6-5	TC-5	Hash Filter
15	.1	600		684-.1	DT6P1	TP418	S-6-1	TC-1	" "
16	.006	1600		1684-006	MD16D6	OW344	TM-16-006	TR-26	Buffer
17	.1	600		684-.1	DT6P1	TP418	S-6-1	TC-1	Audio Coupling
18	.1	600		684-.1	DT6P1	TP418	S-6-1	TC-1	" "
19	.01	600		684-01	DT6S1	TP410	S-6-01	TC-11	Tone Compensation
20	.1	600		684-.1	DT6P1	TP418	S-6-1	TC-1	Audio Coupling
21	.01	600		684-01	DT6S1	TP410	S-6-01	TC-11	" "
22	.01	600		684-01	DT6S1	TP410	S-6-01	TC-11	" "
23	.005	600		684-005	DT6D5	TP408	S-6-005	TC-25	Mic. Coupling
24	.005	600		684-005	DT6D5	TP408	S-6-005	TC-25	" "
25	.1	600		684-.1	DT6P1	TP418	S-6-1	TC-1	Hash Filter

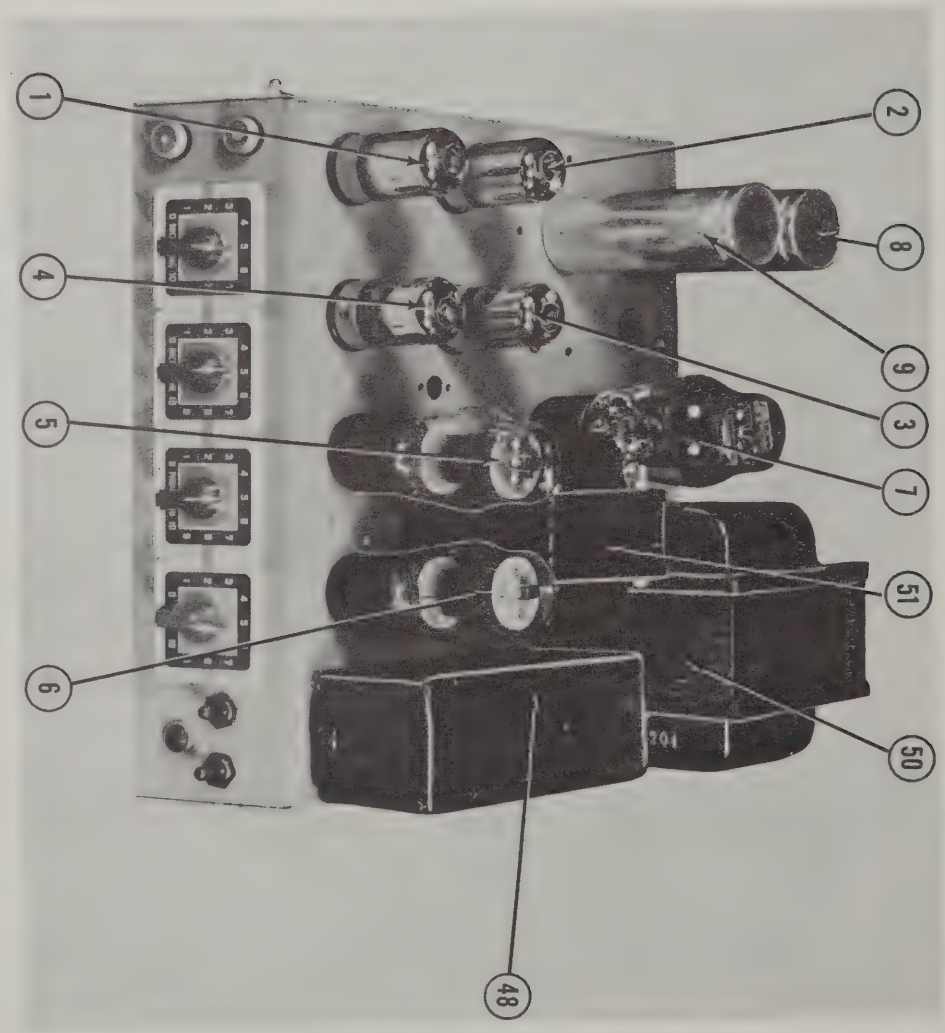
CONTROLS

ITEM No.	RATING		REPLACEMENT DATA				INSTALLATION NOTES
	RESISTANCE	WATTS	MASCO PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
26A	500KΩ	1		MR48	D13-133	M-60-Z	Mike 1 Control
B	Shaft			Not Req.	A	Not Req.	Attach to 26A per instructions
27A	500KΩ	1		MR48	D13-133	M-60-Z	Mike 2 Control
B	Shaft			Not Req.	A	Not Req.	Attach to 27A per instructions
28A	500KΩ	1		MR48	D13-133	M-60-Z	Phono Control
B	Shaft			Not Req.	A	Not Req.	Attach to 28A per instructions
29A	500KΩ	1		MR48	D13-133	M-60-Z	Tone Control
B	Shaft			Not Req.	A	Not Req.	Attach to 29A per instructions

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	MASCO PART No.	IRC PART No.	
30	15 Meg.	1/2		BTS-15 Meg.	Br.-Grn.-Blue Mike 1 Grid
31	15 Meg.	1/2		BTS-15 Meg.	Br.-Grn.-Blue Mike 2 Grid
32	100KΩ	1/2		BTS-100K	Br.-Blk.-Yl. Mike 1 Plate
33	100KΩ	1/2		BTS-100K	Br.-Blk-Yl. Mike 2 Plate
34	1000Ω	1/2		BTS-1000	Br.-Blk.-Red Mixer Cathode
35	47KΩ	1/2		BTS-47K	Yl.-Vi.-Or. Mixer Plate Load
36	500KΩ	1/2		BTS-470K	Grn.-Blk-Yl. Driver Grid
37	47KΩ	1/2		BTS-47K	Yl.-Vi.-Or. Driver Plate Load
38	47KΩ	1/2		BTS-47K	Yl.-Vi.-Or. Ph. Inv. Plate Load
39	10KΩ	1/2		BTS-10K	Br.-Blk-Or. Ph. Inv. Grid
40	100KΩ	1/2		BTS-100K	Br.-Blk-Yl. Output Grid

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	MASCO PART No.	IRC PART No.	
41	100KΩ	1/2		BTS-100K	Br.-Blk-Yl. Output Grid
42	200Ω	10		AB-200	Output Cathode
43	5000Ω	10		AB-5000	Filter
44	12KΩ	1/2		BTS-12K	Br.-Red-Or. "
45	12KΩ	1/2		BTS-12K	Br.-Red-Or. Filter
46	1000Ω	1/2		BTS-1000	Br.-Blk-Red Driver Cathode
47	3 Meg.	1/2		BTS-3.3 Meg.	Or.-Blk.-Grn. Feedback

VIBRATOR

ITEM No.	TYPE	INPUT VOLTS	FREQUENCY	REPLACEMENT DATA			INSTALLATION NOTES
				MASCO PART No.	MALLORY PART No.	RADIART PART No.	
48	Synchronous	6.3	60 ∿	491			

FILTER CHOKE

ITEM NO.	RATINGS			REPLACEMENT DATA			INSTALLATION NOTES
	TOTAL DIRECT CURRENT	D. C. RESISTANCE	INDUCTANCE (0 CURRENT 1000 ∿)	MASCO PART NO.	STANCOR PART NO.	THORDARSON PART NO.	
49	.136A	120Ω	8 Henries	C-235	C-2309*	T20054	*Drill new mounting holes.

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA			INSTALLATION NOTES
	PRI.	SEC. 1	SEC. 2	SEC. 3	MASCO PART No.	STANCOR PART No.	THORDARSON PART No.	
50	117V AC @ 1.35A 6.0V DC† @ 12.5A	730V CT @ .136A	5.0V AC @ 3.0A	6.3V AC @ 3.7A	A-25M			†In AC use, the 6.3V AC is obtained from taps on this winding. In battery operation the 6.3V is obtained from the battery, and the taps are not used.

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		MASCO PART No.	STANCOR PART No.	THORDAR'N PART No.		
	PRI.	SEC.	PRI.	SEC.					
51	10,000Ω CT	2Ω 4Ω 8Ω 15Ω 500Ω	240Ω CT	.4Ω .5Ω .7Ω .9Ω 21Ω	0-25	A-3311*			*Drill new mounting holes.

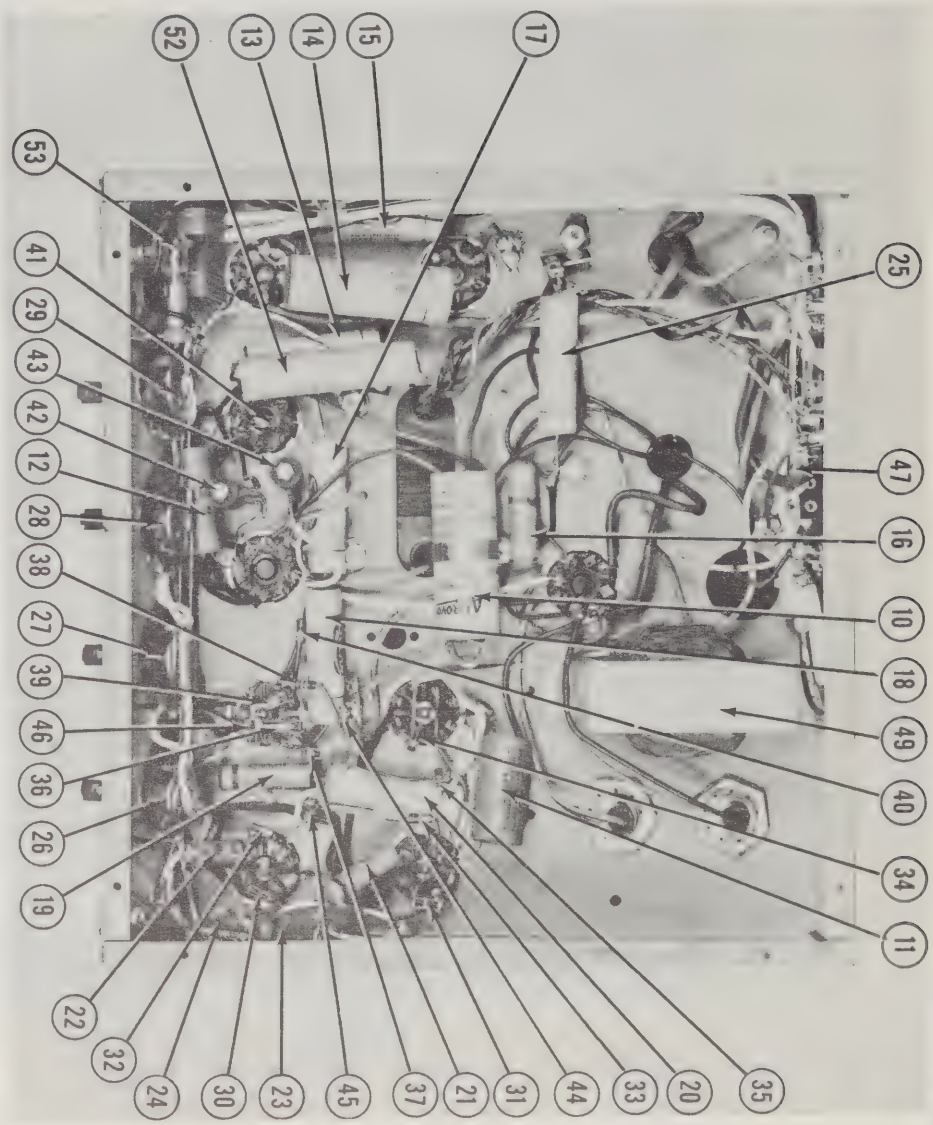
R F COILS

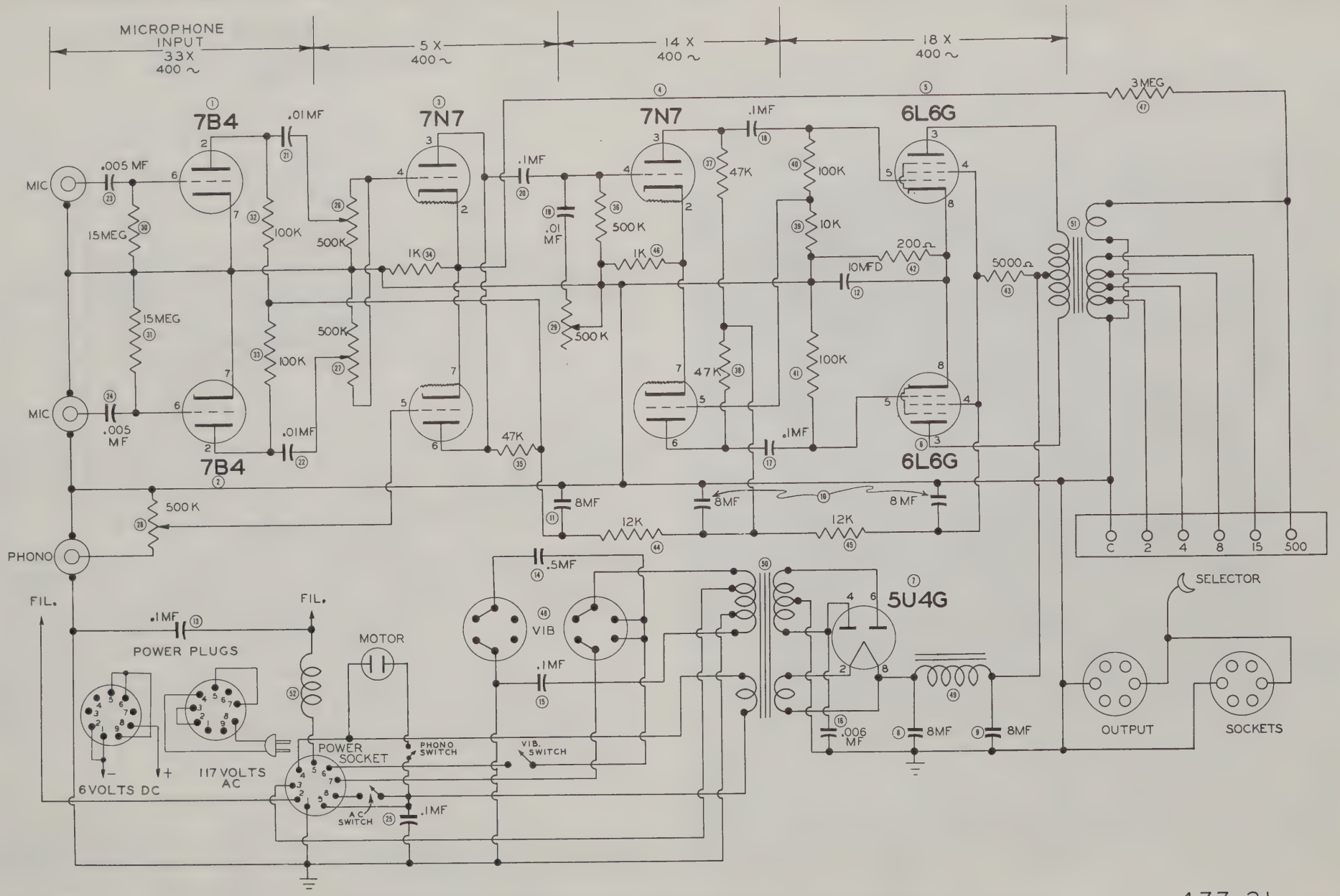
ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	MASCO PART No.	MEISSNER PART No.	
52	RF Choke		0Ω			

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					MASCO PART No.		
53	Bayonet	6-8	0.15	Brown			Type 47

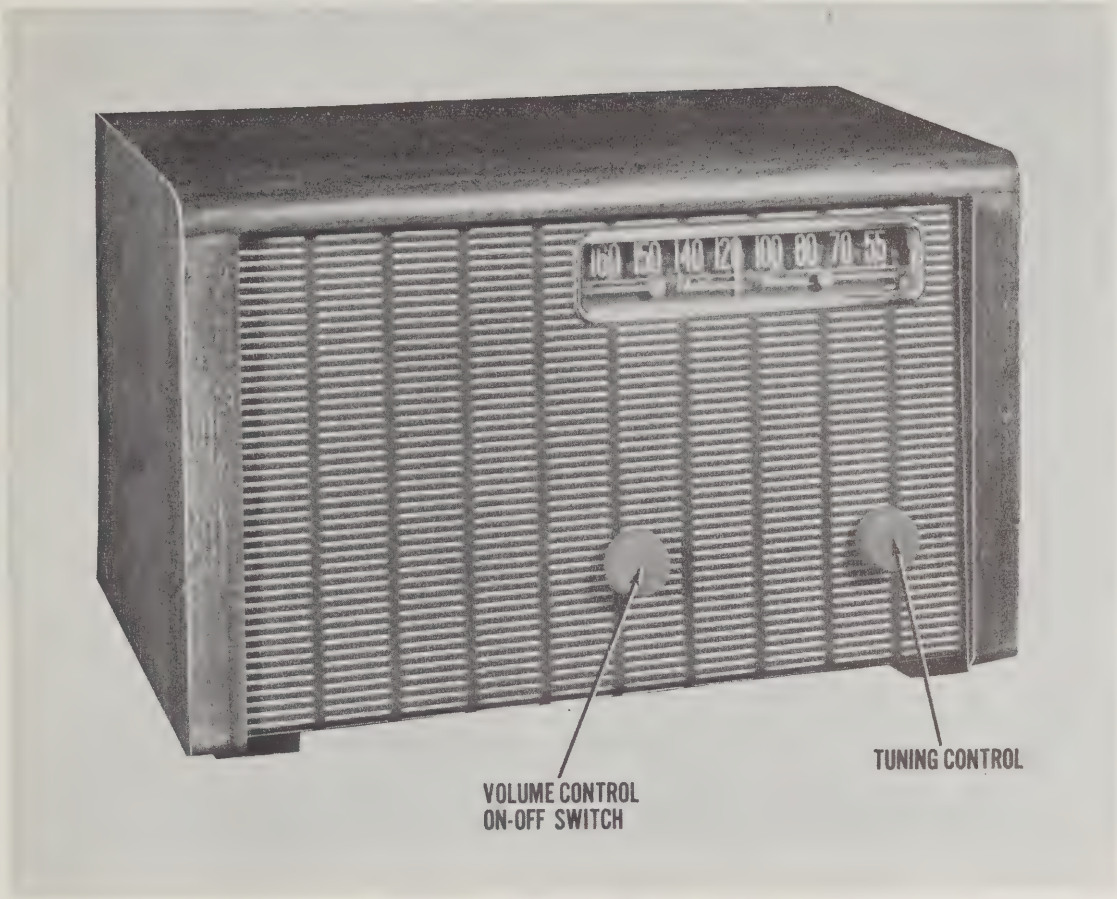
CHASSIS—BOTTOM VIEW





THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

NATIONAL UNION
MODELS 571, 571A, 571B



NATIONAL UNION
MODELS 571, 571A, 571B

NATIONAL UNION MODEL 571

TRADE NAME	National Union, Models 571, 571A, 571B
SUPPLIER	National Union Radio Corp., Newark 2, N.J.
TYPE SET	AC-DC Operated Superheterodyne-Self Contained Loop Antenna
TUBES (FIVE)	Types, 12SA7GT/G Converter, 12SK7GT/G IF Amp., 12SQ7GT/G Det.-AVC-AF, 50L6GT Power Output, 35Z5GT Rectifier.
POWER SUPPLY	105-125 Volts AC-DC
TUNING RANGE—BROADCAST	540-1600KC
RATING	.240 Amp. @ 117 Volts AC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use isolation transformer if available. If not, connect a capacitor in series with low side of signal generator and B-. Volume control at maximum position. Output of signal generator should be no higher than necessary to obtain output reading. Use an insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD.	High side to Pin 8 (grid) of 12SA7, Low side to B-.	455KC	Tuning cap. fully open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If isolation transformer is not used, reduce dummy ant. to .001 MFD. to reduce hum modulation.
	Loop	1620KC	"	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
	"	1400KC	Tune for maximum output.	"	A6	Adjust for maximum output.

HOWARD W. SAMS & CO., INC. Indianapolis Indiana

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed." "Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1947 by Howard W. Sams & Co., Inc., Indianapolis, Indiana, U. S. A. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc."

PARTS LIST AND DESCRIPTIONS

NATIONAL UNION
MODELS 571, 571A, 571F

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: NATIONAL UNION PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	Converter	12SA7GT/G	12SA7GT/G	6AD	
2	IF Amp.	12SK7GT/G	12SK7GT/G	6N	
3	Det.-AVC-AF	12SQ7GT/G	12SQ7GT/G	8Q	
4	Power Output	50L6GT	50L6GT	7AC	
5	Rectifier	35Z5GT/G	35Z5GT/G	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: NATIONAL UNION PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
6A	40	150	A-8948	AF844D†	UP4215	FP306†	DY-4020-150	EL-24	■ Filter
B	20	150							▲ "
7	.05	400	BC31B803	484-05	DT4S5	TP426	S-4-05	TC-15	Line Filter
8	.02	400	BD410203	484-02	DT4S2	TP423	S-4-02	TC-12	Output Plate Bypass
9	.02	400	BD410203	484-02	DT4S2	TP423	S-4-02	TC-12	Audio Coupling
10	.01	400	BD410103	484-01	DT4S1	TP421	S-4-01	TC-11	" "
11	.1	400	BD410104	484-.1	DT4P1	TP428	S-4-1	TC-1	Line Isolation
12	.05	200	BD210503	484-05	DT4S5	TP426	S-4-05	TC-15	AVC Filter
13	470	500	BM78A471	1468-0005	5W5T5	MC245	MO.5-347	1FM-35	Audio Plate Bypass
14	100	500	BM78A101	1468-0001	5W5T1	MC235	MO.5-31	1FM-31	Osc. Grid Capacitor

†Do not use bypass section.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: NATIONAL UNION PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
15A	500KΩ	1	B-9051-1	MK401	D13-133	AM-60-Z	Volume Control
B	Shaft		Not Req.	Not Req.	E	KSS-3	Attach to 15A per instructions
C	Switch		" "	M26	41	SW-A	" " " " "

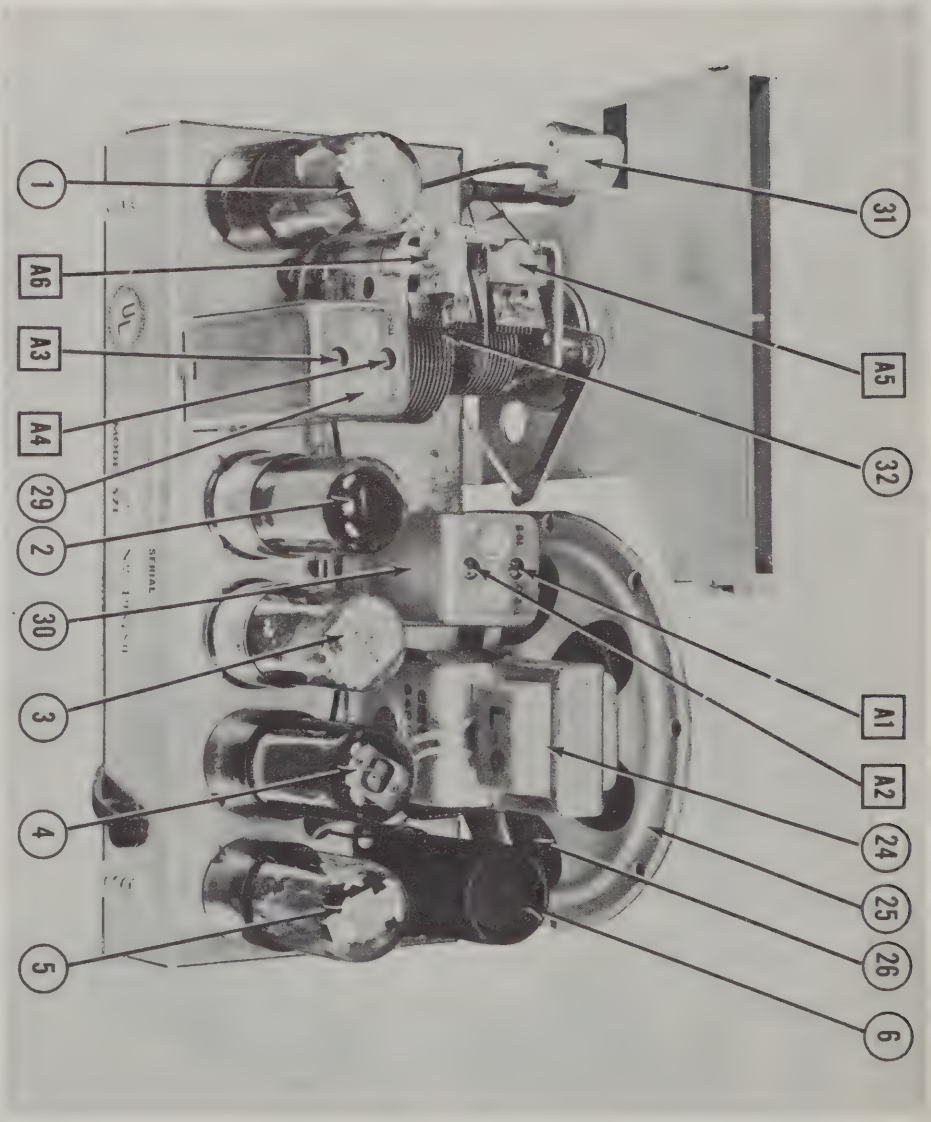
RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: NATIONAL UNION PART No.	IRC PART No.	IDENTIFICATION CODES
16	22KΩ	1/3	BR17B223	BTS-22K	Red-Red-Or. Oscillator Grid
17	15 Meg.	1/3	BR17B156	BTS-15 Meg.	Br.-Grn.-Blue AVC Network
18	220KΩ	1/3	BR17B224	BTS-220K	Red-Red-Yl. Line Isolation
19	3.3 Meg.	1/3	BR17B335	BTS-3.3 Meg.	Or.-Or.-Grn. AVC Network
20	6.8 Meg.	1/3	BR17B685	BTS-6.8 Meg.	Blue-Gray-Grn. AF Grid
21	470KΩ	1/3	BR17B474	BTS-470K	Yl.-Vi.-Yl. AF Plate Load
22	470KΩ	1/3	BR17B474	BTS-470K	Yl.-Vi.-Yl. Output Grid
23	150Ω	1/2	BR16C151	BW-½-150	Br.-Grn.-Br. Output Cathode

TRANSFORMER (OUTPUT)

ITEM No.	RATINC: IMPEDANCE PRI.	RATINC: IMPEDANCE SEC.	RATINC: DC RES. PRI.	RATINC: DC RES. SEC.	REPLACEMENT DATA: NATIONAL UNION PART No.	STANCOR PART No.	THORDAR'N PART No.		INSTALLATION NOTES
24	4000Ω	3.5Ω	240Ω	.7Ω	Part of C-51014	A-3856*	T22S46*		*Bend mounting tabs down, file out slots and mount on original bracket.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA: NATIONAL UNION PART No.	JENSEN PART No.		INSTALLATION NOTES
	FIELD RES.	VC IMP.				
25	350Ω	3.5Ω	C-51014	ST-194† Mod. F5-X		†Parallel Field Coil with 1500Ω 10 watt resistor. Drill and tap magnet frame.
	CONE DIA.	VC DIA.				
26	4-3/4"	1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.			

R F COILS

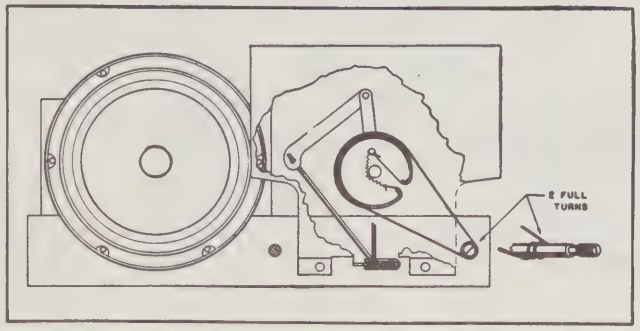
ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA: NATIONAL UNION PART No.	MEISSNER PART No.
27	Loop Ant.		1Ω		
28	Osc. Coil	1Ω	5.5Ω	B-51159	14-1040
29	Input IF	30Ω	22Ω	B-51010-1	16-6658
30	Output IF	30Ω		B-51011-1	16-6670

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA: NATIONAL UNION PART No.		INSTALLATION NOTES
31	Bayonet	6-8	0.15	Brown	A-6158		Type 47

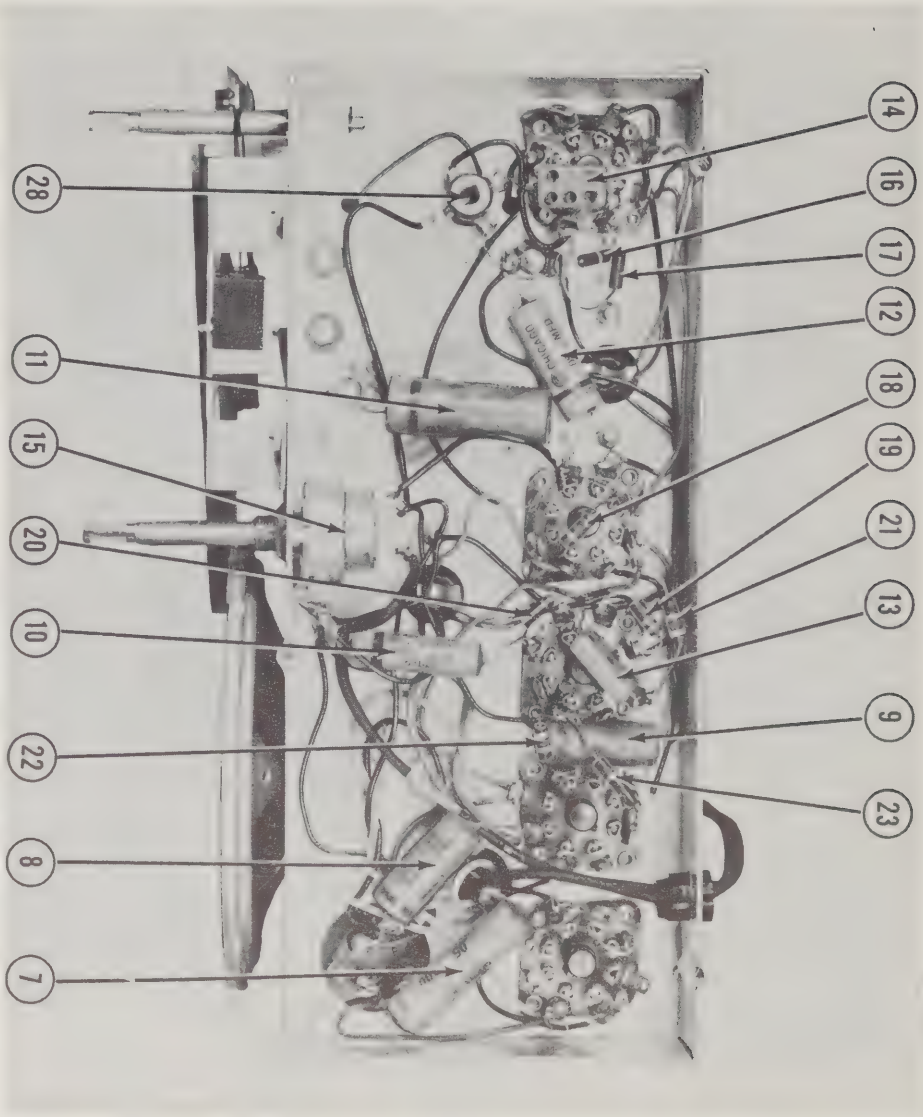
MISCELLANEOUS

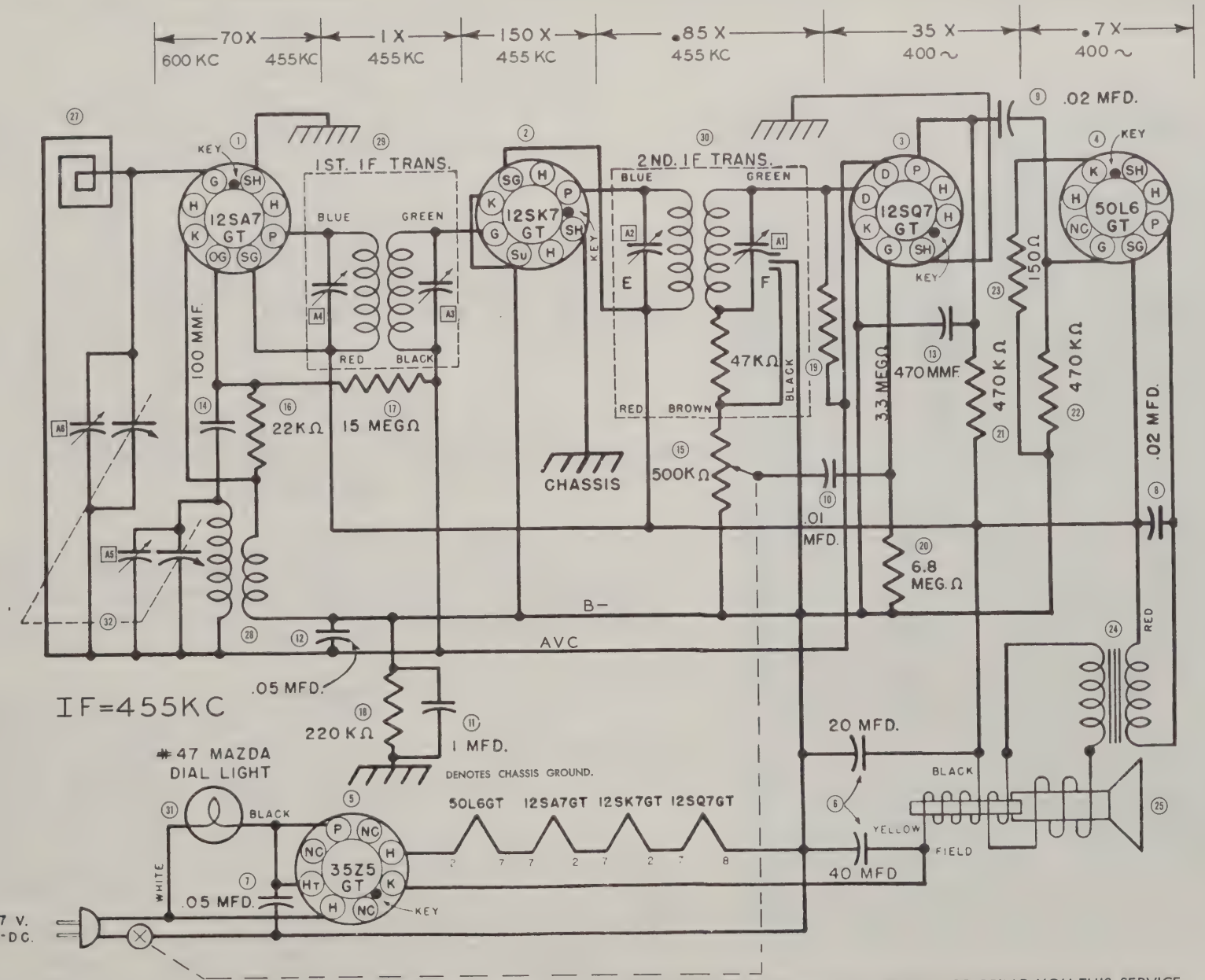
ITEM No.	PART NAME	NATIONAL UNION PART No.	NOTES
32	2 Gang Var. Cap	C-51155-1	28-485 MMF, 29-192 MMF



Dial Mechanism

CHASSIS—BOTTOM VIEW





Pin No	12SA7 GT/G Volt	12SA7 GT/G Res	12SK7GT/G Volt	12SK7GT/G Res
1	0V.	180 KΩ	0V.	180 KΩ
2	37V.AC	36Ω	25V.AC	24Ω
3	100V.DC	110 KΩ	0V.	0Ω
4	100V.DC	110 KΩ	−4V.DC	3.3MEG.
5	−4.4V.DC	21 KΩ	0V.	0Ω
6	0V.	.5Ω	100V.DC	110 KΩ
7	25V.AC	24Ω	13V.AC	13Ω
8	−4V.DC	3.3 MEG.	100V.DC	110 KΩ

Pin No	12SQ7 GT/G Volt	12SQ7 GT/G Res	50L6GT Volt	50L6GT Res
1	0V.	180 KΩ	0V.	INF.
2	−.8V.DC	6.8MEG.	85V.AC	78Ω
3	0V.	0Ω	93V.DC	110 KΩ
4	−45V.DC	480 KΩ	100V.DC	110 KΩ
5	−4V.DC	3.3MEG.	0V.	470 KΩ
6	63V.DC	520 KΩ	0V.	INF.
7	13V.AC	13Ω	37V.AC	36Ω
8	0V.	0Ω	62V.DC	135Ω

Pin No	35Z5GT/G Volt	35Z5GT/G Res
1	0V.	INF.
2	117V.AC	100Ω
3	113V.AC	97Ω
4	0V.	INF.
5	113V.AC	97Ω
6	0V.	INF.
7	85V.AC	78Ω
8	123V.DC	110 KΩ

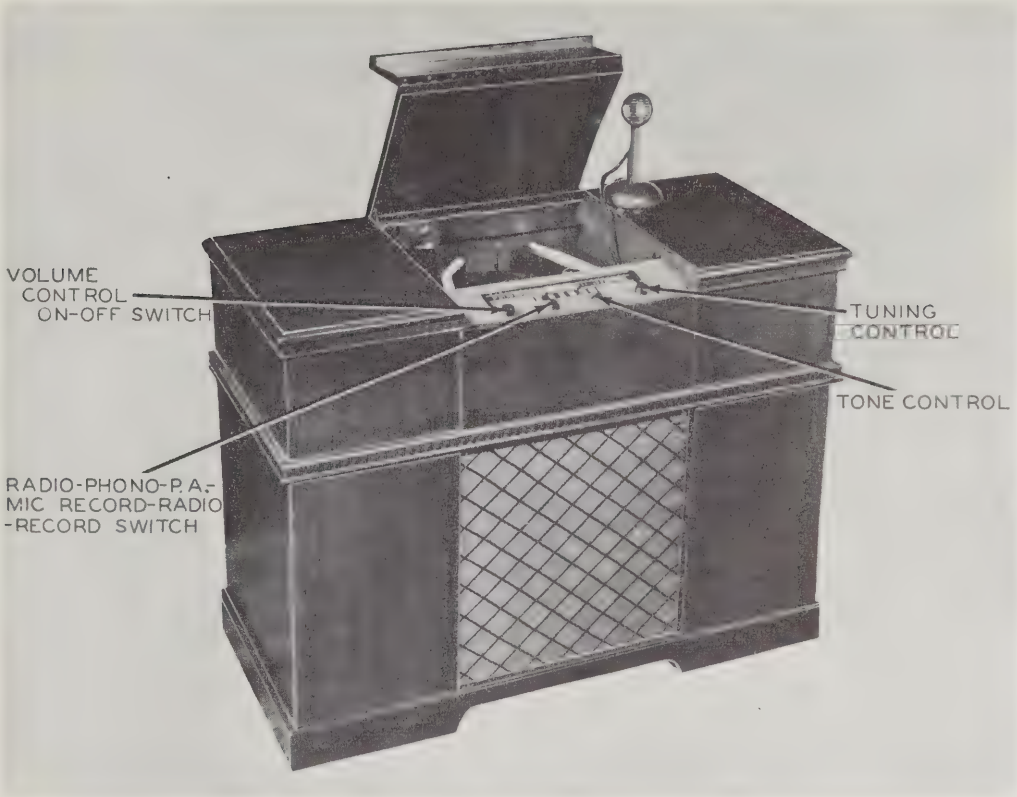
RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

477-22

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.



PACKARD-BELL
MODEL 861

PACKARD-BELL
MODEL 861

PACKARD-BELL MODEL 861

TRADE NAME Packard-Bell Model 861
MANUFACTURER Packard-Bell Co., 3443 Wilshire Blvd., Los Angeles, Calif.
TYPE SET AC Operated Combination Phono - Recorder - Public Address - Superheterodyne Loop Antenna
TUBES (EIGHT) Types, 6SK7GT RF Amp., 6SA7 Converter, 6SK7 IF Amp., 6H6 Det.-Comp. Rect.-AVC, 6SF7 AF Amp., 6SQ7 Mic. Amp., 6V6GT/G Power Output, 5Y3GT/G Rectifier.
POWER SUPPLY 110-120 Volts AC
TUNING RANGE—BROADCAST 540-1620KC RATING .430 Amp. @ 117 Volts AC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer, turn tuning capacitor fully closed and set pointer to last reference mark at low frequency mark at low frequency end of dial. Volume control at maximum position. Output of signal generator should be no higher than necessary to obtain output reading. Use an insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.01 MFD.	High side to Pin 8 (grid) 6SA7. Low side to chassis.	455KC	Tuning cap. closed.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output.
200MMFD.	High side to white lead on ant. plug. Low side to chassis.	1620KC	Tuning cap. fully open.	"	A5	" " " "
200MMFD	"	600KC	600KC	"	A6	Rock tuning cap and adjust for maximum output.
200MMFD	"	1500KC	Tune for maximum output.	"	A7,A8.	Adjust for maximum output.

HOWARD W. SAMS & CO., INC. **Indianapolis Indiana**

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed." "Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1947 by Howard W. Sams & Co., Inc., Indianapolis, Indiana, U. S. A. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc."

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: PACKARD-BELL PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	RF Amp.	6SK7GT	6SK7GT	8N	
2	Converter	6SA7	6SA7	8R	
3	IF Amp.	6SK7	6SK7	8N	
4	Det.-Comp. Rect. AVC	6H6	6H6	7Q	
5	AF Amp.	6SF7	6SF7	7AZ	
6	Mic. Amp.	6SQ7	6SQ7	8Q	
7	Power Output	6V6GT	6V6GT	7AC	
8	Rectifier	5Y3GT/G	5Y3GT/G	5T	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: PACKARD-BELL PART No.	REPLACEMENT DATA: AEROVOX PART No.	REPLACEMENT DATA: CORNELL-DUBILIER PART No.	REPLACEMENT DATA: MALLORY PART No.	REPLACEMENT DATA: SOLAR PART No.	REPLACEMENT DATA: SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
9	40	350	24030	PRS450-40	BR4045	TC-78	M-40-350	2-UT-203	Filter
10	20	350	24003	PRS450-20	BR2045	TC-5	M-20-350	UT-203	"
11	.05	400	23009	484-05	DT4S5	TP426	S-4-05	TC-15	Bias Filter
12	.02	600	23007	684-02	DT6S2	TP412	S-6-02	TC-12	Audio Coupling
13	.005	600	23004	684-005	DT6D5	TP408	S-6-005	TC-25	Output Plate Bypass
14	.01	600	23006	684-01	DT6S1	TP410	S-6-01	TC-11	Compression Coupling
15	.001	600	23001	684-001	DT6D1	TP404	S-6-001	TC-21	Tone Compensation
16	.2	400	23020	484-.2	DT4P2	TP429	S-4-2	TC-2	Audio Plate Decoup.
17	.2	400	23020	484-.2	DT4P2	TP429	S-4-2	TC-2	Audio Screen Bypass
18	.1	400	23019	484-.1	DT4P1	TP428	S-4-1	TC-1	Compression Filter
19	.005	600	23004	684-005	DT6D5	TP408	S-6-005	TC-25	Audio Coupling
20	.02	600	23007	684-02	DT4S2	TP412	S-6-02	TC-12	" "
21	.05	400	23009	484-05	DT4S5	TP426	S-4-05	TC-15	Screen Bypass
22	.05	400	23009	484-05	DT4S5	TP426	S-4-05	TC-15	AVC Filter
23	.05	400	23009	484-05	DT4S5	TP426	S-4-05	TC-15	Screen Decoupling
24	470	500	23916	1468-0005	5W5T5	MC240	M0.5-347	1FM-35	Tone Compensation
25	47	500	23912	1468-00005	5W5S5	MC225	M0.5-447	1FM-45	Osc. Grid Capacitor
26	220	500	23915	1468-0002	5W5T2	MC237	M0.5-322	1FM-32	RF Coupling
27	47	500	23912	1468-00005	5W5S5	MC225	M0.5-447	1FM-45	RF Pri. Shunt
28	220	500	23915	1468-0002	5W5T2	MC237	M0.5-322	1FM-32	RF Coupling

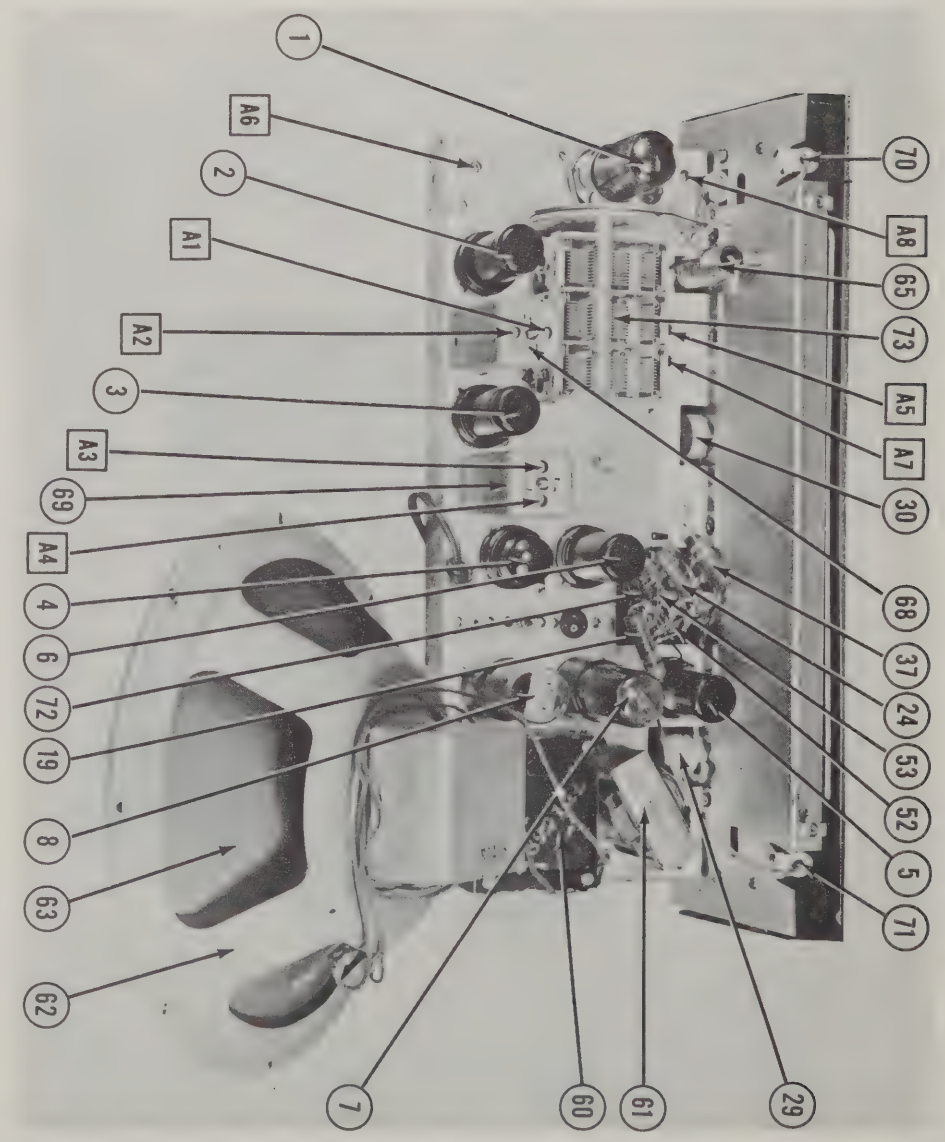
CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: PACKARD-BELL PART No.	REPLACEMENT DATA: MALLORY PART No.	REPLACEMENT DATA: IRC PART No.	REPLACEMENT DATA: CLAROSTAT PART No.	INSTALLATION NOTES
29A	1 Meg.	1	25010B	MRT440	D13-137X	T-110	Volume Control
B	Shaft		Not Req.	Not Req.	A	Not Req.	Attach to 29A per instructions.
C	Switch		" "	M26	41	SW-A	" " " " "
30A	5 Meg.	1	25506B			M-69-Z	Tone Control
B	Shaft		Not Req.			Not Req.	Attach to 30A per instructions.

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: PACKARD-BELL PART No.	REPLACEMENT DATA: IRC PART No.	IDENTIFICATION CODES
31	2.2 Meg.	½	73055	BTS-2.2 Meg.	Red-Red-Grn. RF Grid
32	39Ω	½	73008	BW-½-39	Or.-White-Blk. RF Cathode
33	2.2 Meg.	½	73055	BTS-2.2 Meg.	Red-Red-Grn. Converter Grid
34	22KΩ	½	73041	BTS-22K	Red-Red-Or. Oscillator Grid
35	390Ω	½	73020	BW-½-390	Or.-White-Br. IF Cathode
36	1 Meg.	½	73053	BTS-1 Meg.	Br.-Blk.-Grn. AVC Network
37	10KΩ	2	73125	BT-2-10K	Br.-Blk.-Or. Screen Dropping
38	220KΩ	½	73049	BTS-220K	Red-Red-Yl. Diode Load
39	22KΩ	½	73041	BTS-22K	Red-Red-Or. Diode Load
40	470KΩ	½	73051	BTS-470K	Yl.-Vi.-Yl. Audio Voltage Divider
41	2.2 Meg.	½	73055	BTS-2.2 Meg.	Red-Red-Grn. Compression Coupling

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	PACKARD-BELL PART No.	IRC PART No.	
42	220KΩ	½	73049	BTS-220K	Red-Red-Yl. Compression Diode Load
43	4.7 Meg.	½	73057	BTS-4.7 Meg.	Yl.-Vi.-Grn. 1st AF Grid
44	39Ω	½	73008	BW-½-39	Or.-White-Blk. 1st AF Cathode
45	1.5 Meg.	½	73054	BTS-1.5 Meg.	Br.-Grn.-Grn. 1st AF Screen Dropping
46	220KΩ	½	73049	BTS-220K	Red-Red-Yl. 1st AF Plate Load
47	47KΩ	½	73045	BTS-47K	Yl.-Vi.-Or. Decoupling
48	560Ω	½	73022	BTS-560	Grn.-Blue-Br. Feedback
49	100KΩ	½	73047	BTS-100K	Br.-Blk Yl. Mic. Amp. Plate Load
50	1 Meg.	½	73053	BTS-1 Meg.	Br.-Blk.-Grn. Isolation
51	1.5 Meg.	½	73054	BTS-1.5 Meg.	Br.-Grn.-Grn. Audio Voltage Divider
52	.47Ω	½	73910	BW-½-.47	Voice Coil Shunt
53	100KΩ	½	73047	BTS-100K	Br.-Blk.-Yl. Series Phono
54	470KΩ	½	73051	BTS-470K	Yl.-Vi.-Yl. Output Grid
55	220KΩ	½	73049	BTS-220K	Red-Red-Yl. Output Grid Decoupling
56	15Ω	1	73023	BW-1-15	Cutter Shunt
57	4.7 Meg.	½	73057	BTS-4.7 Meg.	Yl.-Vi.-Grn. Mic. Amp. Grid
58	2000Ω	5	73902	AB-2000	Filter
59	150Ω	1	73081	BW-1-150	Br.-Grn.-Br. Bias

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA			INSTALLATION NOTES
	PRI.	SEC. 1	SEC. 2	SEC. 3	PACKARD-BELL PART No.	STANCOR PART No.	THORDARSON PART No.	
60	117V AC @ .43A	540V CT @ .056A	5.0V AC @ 1.8A	5.9V AC @ 2.0A	89010	P-6119*	T22R01	*Add resistor to reduce voltage to normal.

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE PRI.	IMPEDANCE SEC.	DC RES. PRI.	DC RES. SEC.	PACKARD-BELL PART No.	STANCOR PART No.	THORDAR'N PART No.		
61	7100Ω	4.1Ω	770Ω	.7Ω	89409	A-3878†	T22S47†		†Drill one new mounting hole.

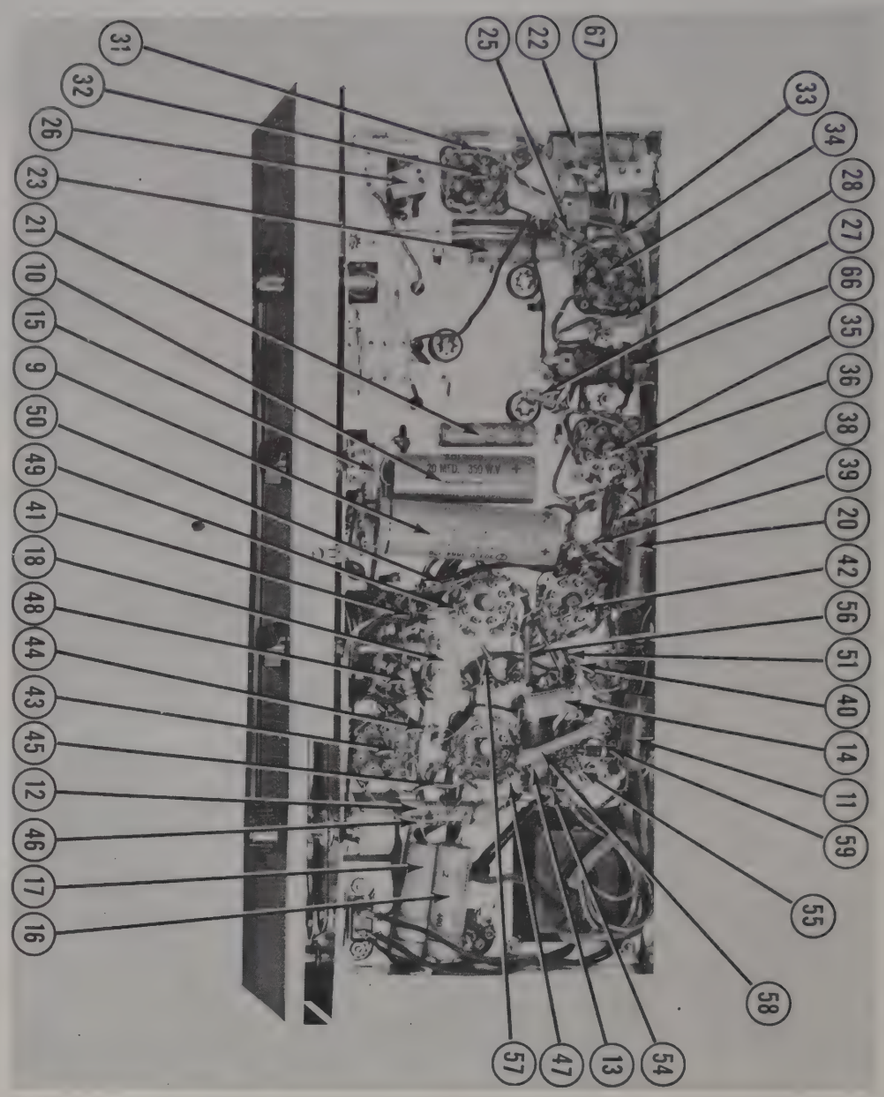
SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			PACKARD-BELL PART No.	JENSEN PART No.		
62	FIELD	VC IMP.	83703	ST-119 Mod. P10-T		
	PM	4.1Ω				
63	CONE DIA. 9½"	VC DIA. 1"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT			

R F COILS

ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA PACKARD-BELL PART No.	REPLACEMENT DATA MEISSNER PART No.
64	Loop Ant.			92194	
65	Ant. Coil		5Ω	29400A	
66	RF Coil	62Ω	4Ω	29102B	
67	Osc. Coil	1Ω	6Ω	29205B	
68	Input IF	17Ω	16.5Ω	29004D	16-6658
69	Output IF	21Ω		29007	16-6670

CHASSIS—BOTTOM VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA PACKARD-BELL PART No.		INSTALLATION NOTES
70	Bayonet	6-8	0.25	Blue	54001		Type 44
71	"	"	"	"	"		"

MISCELLANEOUS

ITEM No.	PART NAME	PACKARD-BELL PART No.	NOTES
72	Function Switch	86009A	Rotary-3 Wafer
73	Tuning Cap.	23500C	(12-463 MMF) each section
	Micro Switch	86802	Cutter Stop
A5	Trimmer Cap.	23406	Osc. Trimmer
A6	Trimmer Cap.	23402	Osc. Padder
A7	Trimmer Strip	23001	RF Adj.
A8			Ant. Adj.
	Dial Glass	38038	
	Microphone	57004	
	Record Changer	58004D	

DISASSEMBLY INSTRUCTIONS

1. Remove two screws holding metal shield back of receiver chassis. Remove panel.
2. Remove four screws holding rear center panel board. Remove panel board.
3. Remove nuts from chassis mounting bolts.
4. Remove phono-motor plug from chassis.
5. Remove phono-pickup plug from chassis.
6. Remove phono-recorder plug from chassis.
7. Remove mike plug from chassis.
8. Remove speaker plug from chassis.
9. Remove loop antenna plug from chassis.
10. Remove chassis from cabinet.
11. Remove four screws holding speaker. Remove speaker.

HOW TO CHECK COMPRESSION VOLTAGE

Turn the Selector Switch to Radio Record position. Feed a 1 volt (RMS) 1000 cycle signal into the diode return of the 2nd IF (brown lead). Connect the leads of a vacuum tube voltmeter to the point indicated on schematic diagram and ground. The voltage at this point should be approximately a minus 2.25 volts.

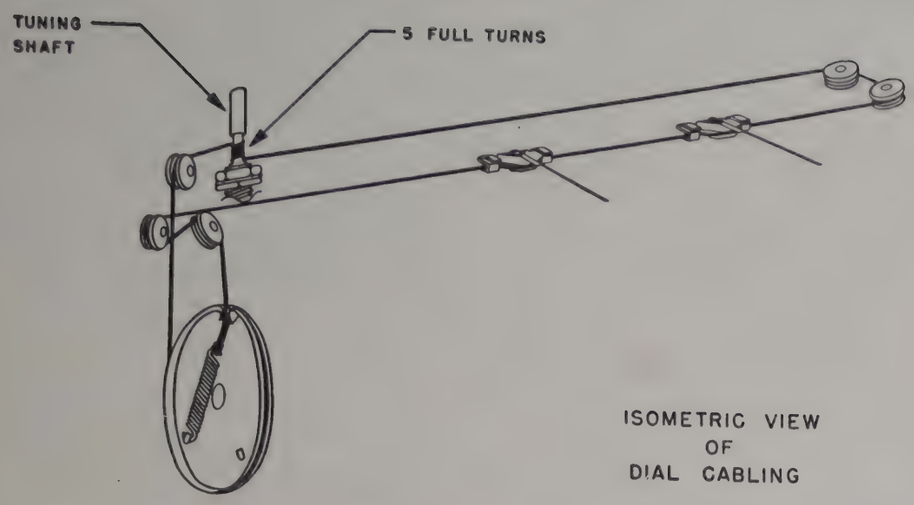
BRIEF DESCRIPTION OF COMPRESSION CIRCUIT

One diode section of the 6H6 serves as the compressor rectifier. The other diode section functions as the 2nd Detector. The compression system is automatic, and is in the circuit on both record positions. A portion of the output voltage is rectified by the 6H6 and varies grid bias of the first audio, 6SF7.

RECORDING HEAD PRESSURE

The proper recording head pressure is 1¼ Oz. Adjustment of this pressure is made by turning the small screw on the top of the recording arm. This adjustment is very cricital and should be made in quarter turns. TURN THE SCREW CLOCKWISE TO INCREASE THE CUTTING DEPTH AND COUNTER-CLOCKWISE TO DECREASE THE CUTTING DEPTH.

This adjustment is made at the factory with an ordinary postal scale, consequently, field adjustments should be made in like manner.



ISOMETRIC VIEW
OF
DIAL CABLING

VOLTAGE AND RESISTANCE TAKEN IN BROADCAST POSITION

VOLTAGE READINGS

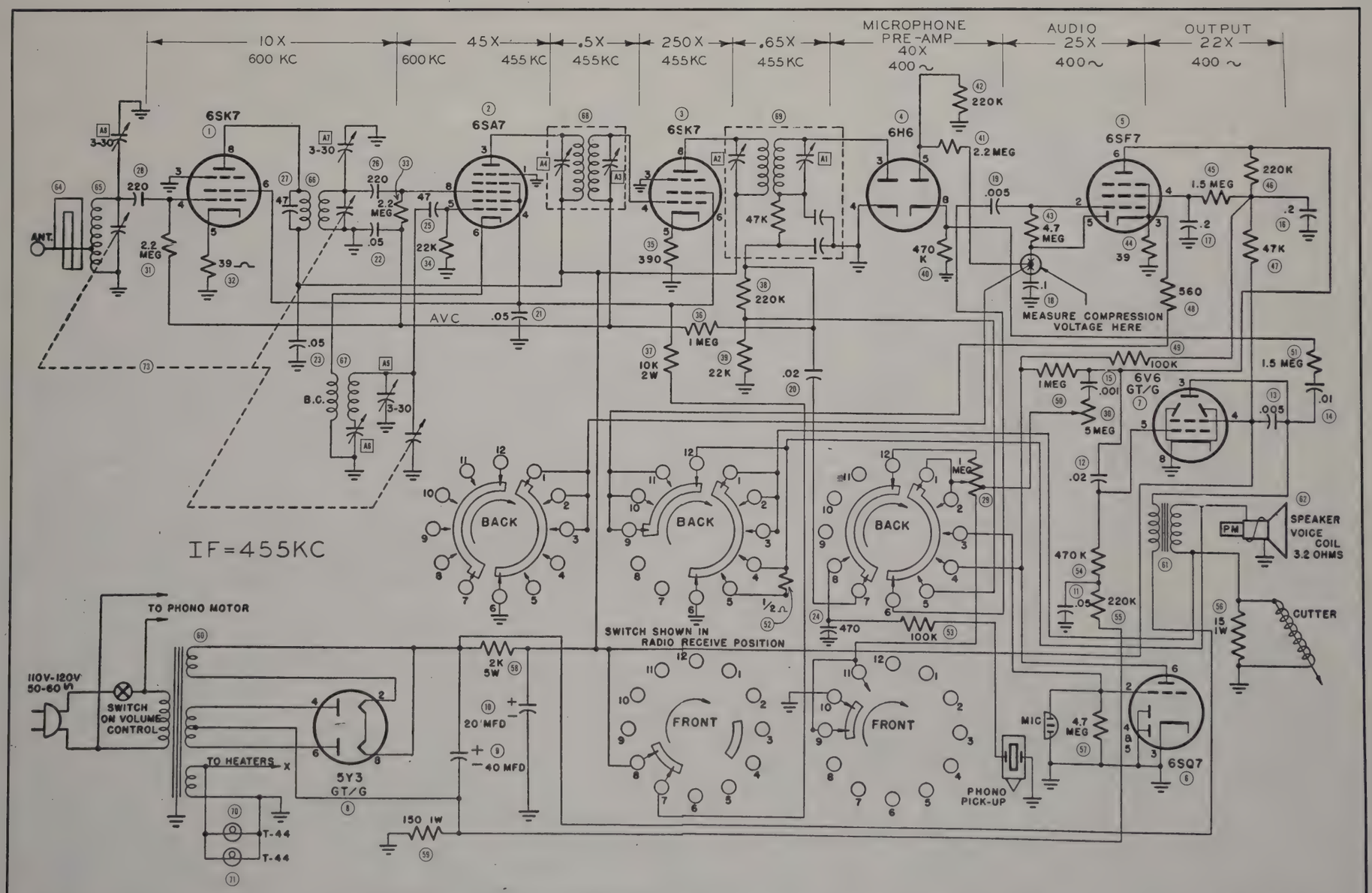
Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SK7GT	0V.	0V.	0V.	0V.	.5V.DC	87V.DC	5.9V.AC	187V.DC
2	6SA7	0V.	0V.	187V.DC	87V.DC	-3.8V.DC	0V.	5.9V.AC	0V.
3	6SK7	0V.	0V.	0V.	0V.	3V.DC	87V.DC	5.9V.AC	187V.DC
4	6H6	0V.	0V.	-8V.DC	0V.	-.1V.DC	0V.	5.9V.AC	.15V.DC
5	6SF7	0V.	-4V.DC	0V.	111V.DC	0V.	62V.DC	5.9V.AC	0V.
6	6SQ7	0V.	-4V.DC	0V.	0V.	0V.	100V.DC	5.9V.AC	0V.
7	6V6GT/G	0V.	0V.	235V.DC	190V.DC	-.75V.DC	150V.DC	5.9V.AC	0V.
8	5Y3GT/G	0V.	245V.DC	0V.	250V.AC	0V.	250V.AC	0V.	245V.DC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SK7GT	0Ω	0Ω	0Ω	3MEG.	37Ω	100KΩ	.1Ω	90KΩ
2	6SA7	0Ω	0Ω	90KΩ	100KΩ	22KΩ	.5Ω	.1Ω	3.2MEG
3	6SK7	0Ω	0Ω	0Ω	1 MEG	350Ω	100KΩ	.1Ω	90KΩ
4	6H6	0Ω	0Ω	250KΩ	0Ω	200KΩ	900KΩ	.1Ω	490KΩ
5	6SF7	0Ω	4.5MEG.	35Ω	1.8MEG.	0Ω	330KΩ	.1Ω	0Ω
6	6SQ7	0Ω	4.5MEG.	0Ω	0Ω	0Ω	240KΩ	.1Ω	0Ω
7	6V6GT/G	0Ω	0Ω	90KΩ	90KΩ	700KΩ	125KΩ	.1Ω	0Ω
8	5Y3GT/G	0Ω	90KΩ	240KΩ	250Ω	130Ω	250Ω	1.8MEG	90KΩ

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

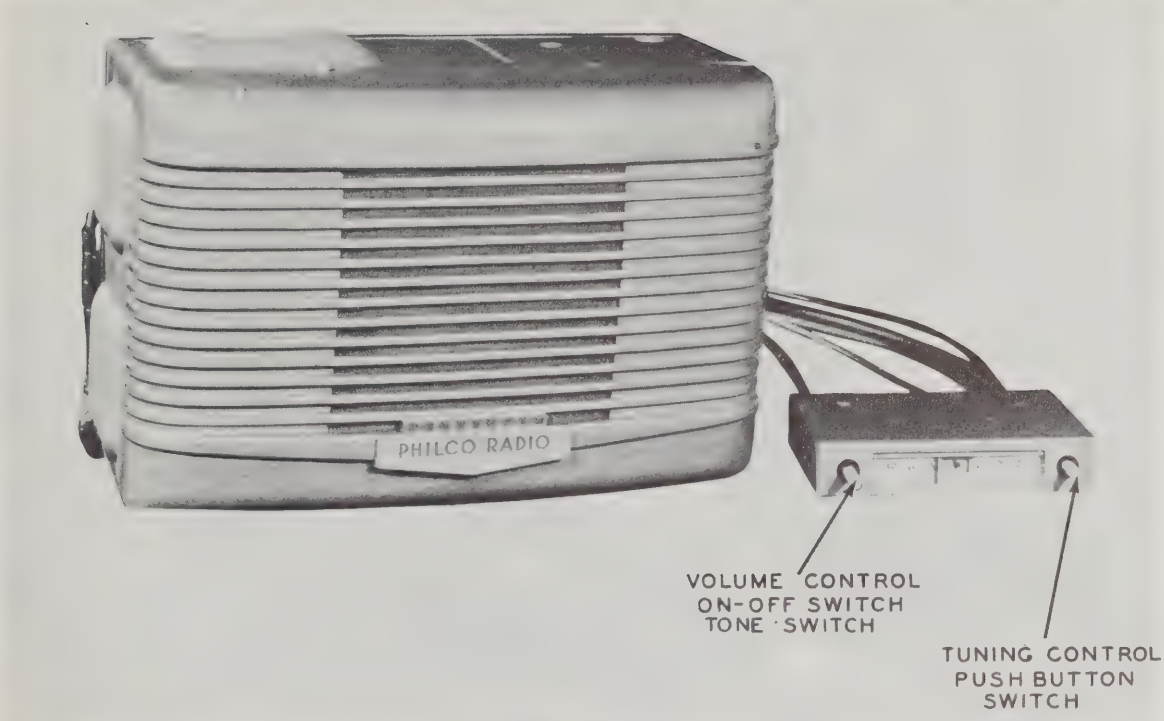
1. DC Voltage measurements are at 20,000 ohms per volt. AC Voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of + 15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.



THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

477-23

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.



PHILCO
MODEL UN6-500

PHILCO
MODEL UN6-500

PHILCO MODEL UN6-500

TRADE NAME	Philco, Model UN6-500
MANUFACTURER	Philco Corp., Tioga & "C" Sts., Philadelphia, Pa.
TYPE SET	Battery Operated Universal Automobile Receiver with Automatic Pushbutton Tuning
TUBES (SIX)	Types, 7A7 RF Amp., 7B8 Converter, 7A7 IF Amp., 7B6 Det.-AVC-AF, 7C5 Power Output, 7Y4 Rectifier.
POWER SUPPLY	6 Volt Storage Battery
TUNING RANGE—BROADCAST	550-1580 KC RATING 6.9 Amp. @ 6.3 Volts DC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control at maximum position, output of signal generator should be no higher than necessary to obtain output reading. Use an insulated alignment screwdriver for adjusting. After receiver is re-installed in car, set the dial pointer to coincide with the index dot at the low frequency end of the dial. Tune in weak station near 1400KC and adjust A7 for maximum volume.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.05 MFD.	High side to ant. receptacle. Low side to chassis.	455KC	Tuning cap closed.	Across voice coil	A1,A2, A3,A4.	Tighten A5 completely. Short rear stator of tuning cap. to chassis. Turn band switch to dial position. Loosen the screw directly below the escutcheon plate that conceals the pushbutton set up adjustments. When this is loosened about ½" the band switch is locked in the dial position. Adjust A1-A4 for maximum output, then repeat until no further increase in output is obtained.
.05 MFD.	"	"	"	"	A5	Adjust for minimum output. Remove short from rear stator of tuning cap.
30MMFD.	"	1580KC	Tuning cap. fully open.	"	A6	Adjust for maximum output.
30MMFD.	"	1400KC	Tune for maximum output.	"	A7	" " " "
30MMFD.	"	580KC	"	"	A8	Rock tuning cap and adjust for maximum output. Repeat last three steps.

HOWARD W. SAMS & CO., INC. **Indianapolis Indiana**

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed."
"Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1947 by Howard W. Sams & Co., Inc., Indianapolis, Indiana, U. S. A. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc."

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		PHILCO PART No.	STANDARD REPLACEMENT		
1	RF Amp.	7A7	7A7	8V	
2	Converter	7B8	7B8	8X	
3	IF Amp.	7A7	7A7	8V	
4	Det.-AVC-AF	7B6	7B6	8W	
5	Power Output	7C5	7C5	6AA	
6	Rectifier	7Y4	7Y4	5AB	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT	PHILCO PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	
7A	10	350	61-0089	AF32K4A	UP6CJ17	FP328	DY-310	EL-153	■ Filter
B	15	350							▲ "
C	20	25							Cath. Bypass
8	.003	1600	61-0115		MD16D3	OW342	TM-16-003	TR-23	Buffer
9	.5	100	60-0137	484-.5	DT4P5	TP431	S-4-5	TC-5	Hash Filter
10	.5	100	60-0137	484-.5	DT4P5	TP431	S-4-5	TC-5	" " *
11	.07	200	61-0152	484-075	DT4S6	TP452	TM-6-06	TC-16	Tone Compensation
12	.015	1000	61-0120	1084-015	DT6S1	TP463	TM-6-01	TC-11	Output Plate Bypass
13	.01	600	61-0120	684-01	DT6S1	TP410	TM-6-01	TC-11	Audio Coupling
14	.01	600	61-0120	684-01	DT6S1	TP410	TM-6-01	TC-11	Tone Compensation
15	.006	400	45-3500-7	484-006	DT6D6	TP409	TM-6-006	TC-26	Audio Coupling
16	.1	200	61-0113	484-.1	DT4P1	TP428	TM-6-1	TC-1	Audio Cathode Bypass
17	.25	400	45-3500-9	484-.25	DT4P25	TP430	TM-6-25	TC-2	IF Plate Decoupling
18	.05	200	61-0122	484-05	DT4S5	TP426	TM-6-05	TC-15	IF Cath. Bypass
19	.05	200	61-0122	484-05	DT4S5	TP426	TM-6-05	TC-15	Screen Bypass
20	.05	200	61-0122	484-05	DT4S5	TP426	TM-6-05	TC-15	Conv. Cath. Bypass
21	.05	200	61-0122	484-05	DT4S5	TP426	TM-6-05	TC-15	RF Cath. Bypass
22	.05	200	61-0122	484-05	DT4S5	TP426	TM-6-05	TC-15	AVC Filter
23	.01	600	61-0120	684-01	DT6S1	TP410	TM-6-01	TC-11	Ant. Coupling
24	250	500	6010245307	1468-00025	5W5T25	MC240	MO.5-325	1FM-325	Hash Filter
25	250	500	6010245307	1468-00025	5W5T25	MC240	MO.5-325	1FM-325	Tone Compensation
26	250	500	6010245307	1468-00025	5W5T25	MC240	MO.5-325	1FM-325	Filament Bypass
27	250	500	6010245307	1468-00025	5W5T25	MC240	MO.5-325	1FM-325	Osc. Feedback
28	485	500	30-1220-23						Fixed Padder PB
29	15	500	6000155407					MS-415	Fixed Trimmer
30	280	500	6010305307						Fixed Padder
31	250	500	6010245307	1468-00025	5W5T25	MC240	MO.5-325	1FM-325	Filament Bypass

*Not used in all models.

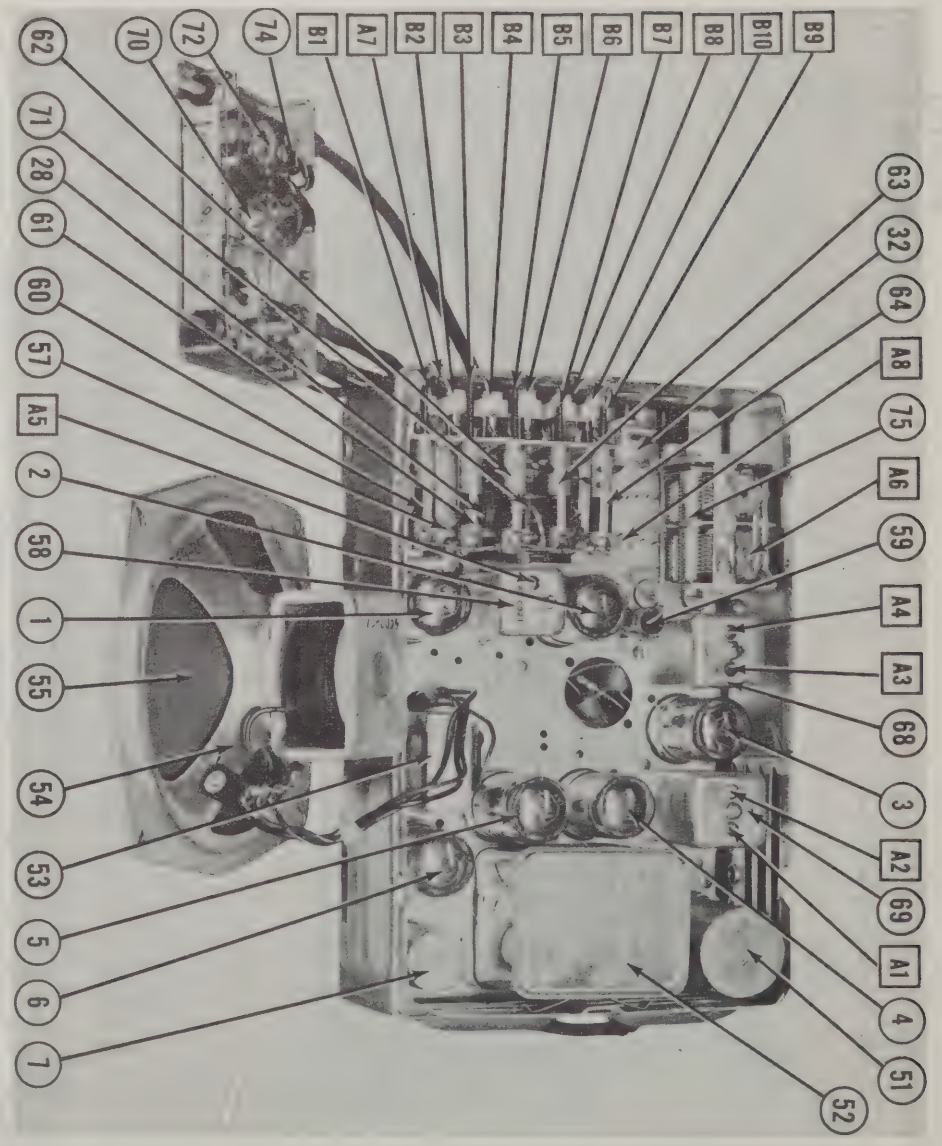
CONTROLS

ITEM No.	RATING		REPLACEMENT DATA				INSTALLATION NOTES
	RESISTANCE	WATTS	PHILCO PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
32	350KΩ	1	67-0043				Volume Control

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	PHILCO PART No.	IRC PART No.	
33	820Ω	½	66-1823340	BTS-820	Gray-Red-Br. RF Cathode
34	10KΩ	½	66-3103340	BTS-10K	Br.-Blk.-Or. RF Plate Load
35	1 Meg.	½	66-5103340	BTS-1 Meg.	Br.-Blk.-Grn. AVC Network
36	180Ω	½	66-1183340	BW-½-180	Br.-Gray-Br. Converter Cathode

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	PHILCO PART No.	IRC PART No.	
37	68KΩ	½	66-6683340	BTS-68K	Blue-Gray-Or. Converter Screen Dropping
38	100KΩ	½	66-4103340	BTS-100K	Br.-Blk.-Yl. Oscillator Grid
39	470Ω	½		BTS-470	Yl.-Vi.-Br. IF Cathode-See Note 1
40	15 Meg.	½	66-6153340	BTS-15 Meg.	Br.-Grn.-Grn. AF Grid
41	330Ω	½	66-1333340	BW-½-330	Or.-Or.-Br. AF Cathode
42	220KΩ	½	66-4223340	BTS-220K	Red-Red-Yl. AF Plate Load
43	470KΩ	½	66-4473340	BTS-470K	Yl.-Vi.-Yl. Output Grid
44	220Ω	1	66-1224340	BW-1-220	Red-Red-Br. Output Cathode
45	1500Ω	½	66-2153340	BTS-1500	Br.-Grn.-Red Feedback
46	4700Ω	½	66-2473340	BTS-4700	Yl.-Vi.-Red Decoupling
47	22KΩ	1	66-3223340	BTA-22K	Red-Red-Or. Screen Dropping
48	1000Ω	1	66-2104340	BTA-1000	Br.-Blk.-Red Filter
49	220Ω	½	66-1223340	BTS-2200	Red-Red-Br. Hash Suppression
50	180Ω	½	66-1183340	BW-½-150	Br.-Grn.-Br. " "

Note 1 - Some models use 180Ω in this application.

VIBRATOR

ITEM No.	TYPE	INPUT VOLTS	FREQUENCY	REPLACEMENT DATA			INSTALLATION NOTES
				PHILCO PART No.	MALLORY PART No.	RADIART PART No.	
51A	Interrupter	6.3	115~	83-0025	859	5326P	
B				83-0026	859	5326P	Alternate Vibrator

TRANSFORMER (VIBRATOR)

ITEM No.	RATING				REPLACEMENT DATA			
	PRI.	SEC. 1	SEC. 2	SEC. 3	PHILCO PART No.	STANCOR PART No.	THORDARSON PART No.	
52	5.3V DC @ 3.7A	480V CT @ .053A			65-0234			

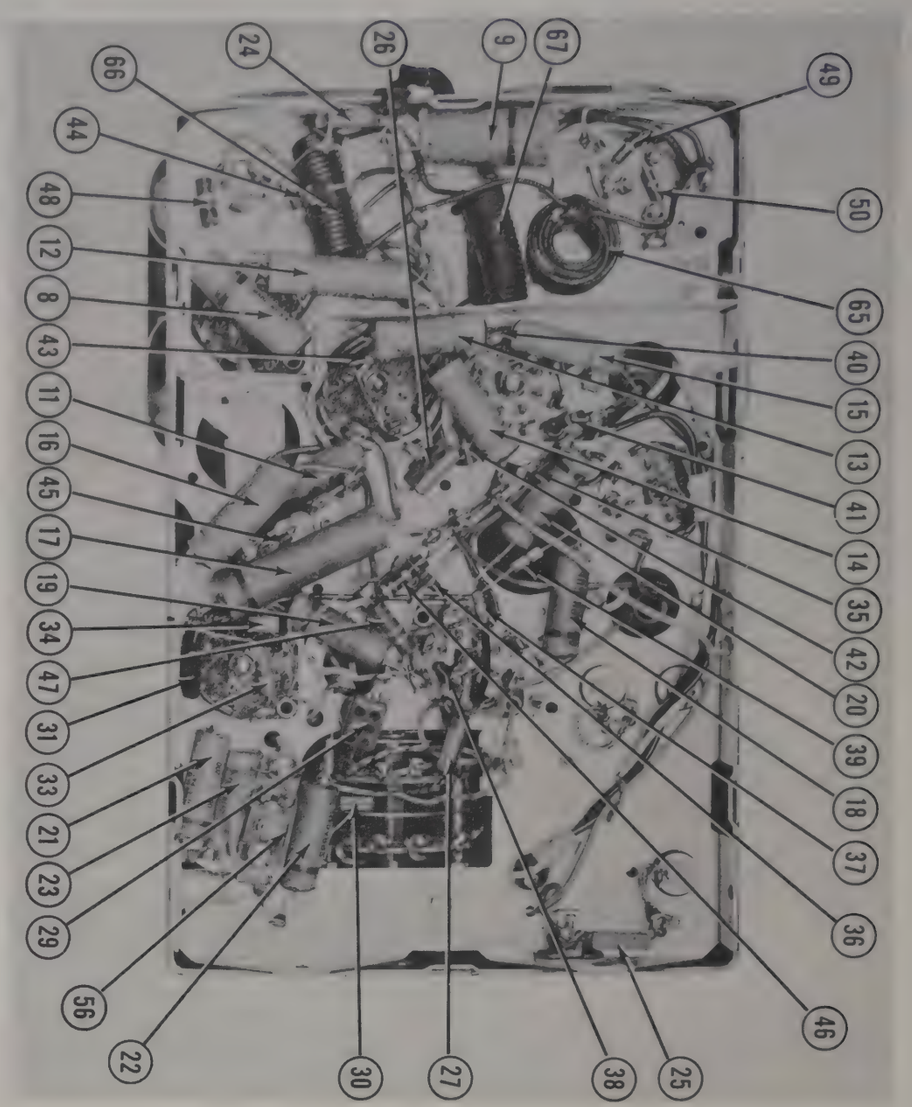
TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		PHILCO PART No.	STANCOR PART No.	THORDAR'N PART No.		
	PRI.	SEC.	PRI.	SEC.					
53	5500Ω	3.3Ω	380Ω	.4Ω	65-0419	A-3877 †	T22846 †		† Drill mounting holes.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			PHILCO PART No.	JENSEN PART No.		
	FIELD RES.	VC IMP.				
54A	4.4Ω	3.3Ω	73-0059			
B			73-0006			Alternate Speaker
	CONE DIA.	VC DIA.				
55	6-1/8"	1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.			

CHASSIS—BOTTOM VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	PHILCO PART No.	MEISSNER PART No.	
56	Ant. Choke Coil		.5Ω	65-0168		
57	Ant. Coil		1.5Ω	65-0323		
58	RF Transformer			65-0321		
59	Osc. Coil		8Ω	65-0420	14-1040	
60	PB Osc.Coil 1		5Ω	65-0169		
61	" " " 2		5.5Ω	65-0170		
62	" " " 3		6.5Ω	65-0171		
63	" " " 4		6.5Ω	65-0172		
64	" " " 5		6.5Ω	65-0173		
65	RF Choke		0Ω	65-0037		
66	" "		0Ω	65-0433		
67	" "		0Ω	65-0452		
68	Input IF	16Ω	11Ω	65-0319	16-6658	
69	Output IF	22Ω		65-0320	16-6670	

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					PHILCO PART No.		
70	Bayonet	6-8	0.40	White	34-2039		Type 55

MISCELLANEOUS

ITEM No.	PART NAME	PHILCO PART No.	NOTES
71	Selector Switch	76-2432	
72	Tone Switch	77-0733	Located in Control Head
73	Fuse	45-2559	
74	On-Off Switch	85-0112	Located in Control Head
75	2 Gang Var. Cap.	63-0077	(17-419MMF) each section
	Pushbutton Trimmers	77-0512	Complete Trimmer Assembly
A8	Trimmer	63_0048	Osc. Padder
	Dial	55-1194	
	Pointer	57-1889	

PUSHBUTTON ADJUSTMENTS

Pushbuttons should be set up after receiver has been mounted in the car. In case they are set up before installation a final adjustment should be made with receiver in the car.

Make a list of five stations ranging from high frequency to low frequency stations making certain that each station falls within the range of the buttons to be set up.

The frequency ranges of the buttons reading from top to bottom are 855-1580KC, 750-1410KC, 660-1240KC, 600-1165KC, 550-1065KC.

1. Turn receiver on and allow it to warm up for about fifteen minutes. Remove plate covering pushbutton adjustments.
2. Set band switch to "D" position and tune in 1st station.
3. Set band switch to "1" position and adjust B1 to tune in 1st station.
4. Adjust B_2 for maximum volume.
5. To set up the remaining buttons follow the same procedure as outlined above, setting bandswitch to the button to be set-up and adjusting B3,B5,B7 and B9 to tune in stations and B4, B6, B8 and B10 for maximum volume.
6. Repeat adjustments for optimum performance.

VOLTAGE READINGS

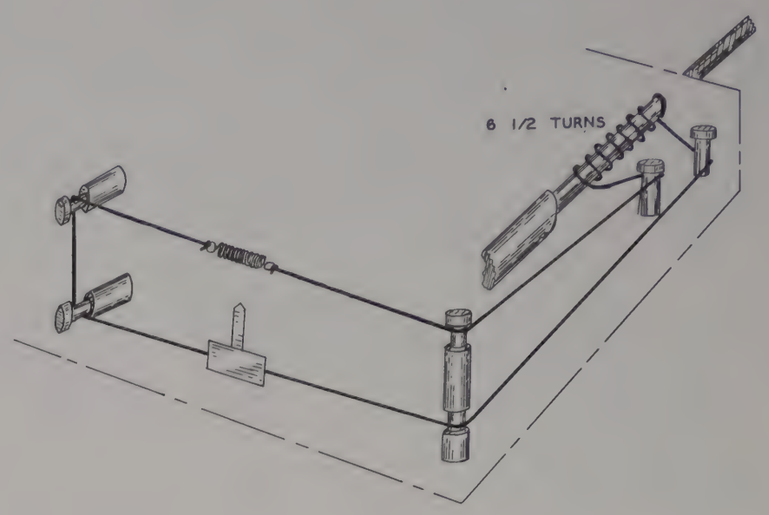
Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	7A7	0V.	185V.DC	90V.DC	0V.	0V.	0V.	4.4V.DC	5.6V.DC
2	7B8	0V.	175V.DC	75V.DC	-5.3V.DC	90V.DC	0V.	2.1V.DC	5.6V.DC
3	7A7	0V.	175V.DC	90V.DC	0V.	0V.	0V.	4.4V.DC	5.6V.DC
4	7B6	0V.	100V.DC	-1V.DC	0V.	-1V.DC	-1V.DC	.1V.DC	5.6V.DC
5	7C5	0V.	232V.DC	220V.DC	0V.	0V.	0V.	8.2V.DC	5.6V.DC
6	7Y4	0V.	0V.	232V.AC	0V.	0V.	240V.AC	240V.DC	5.6V.DC

RESISTANCE READINGS

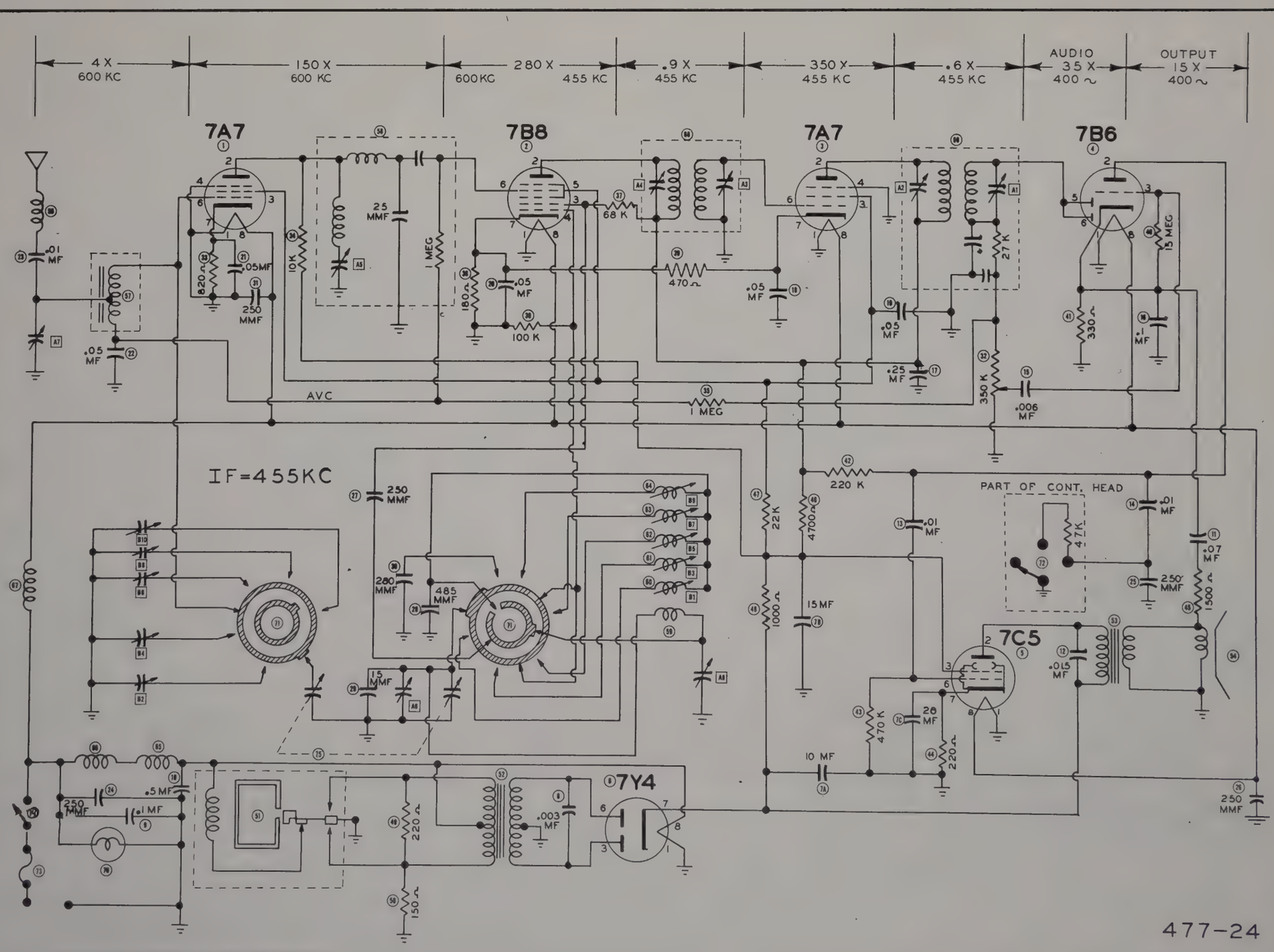
Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	7A7	0Ω	150KΩ	160KΩ	0Ω	0Ω	1.2MEG	700Ω	.1Ω
2	7B8	0Ω	140KΩ	230KΩ	85KΩ	160KΩ	2.5MEG	150Ω	.1Ω
3	7A7	0Ω	140KΩ	160KΩ	0Ω	0Ω	15Ω	700Ω	.1Ω
4	7B6	0Ω	420KΩ	15MEG	350Ω	380KΩ	380KΩ	350Ω	.1Ω
5	7C5	0Ω	140KΩ	140KΩ	INF.	INF.	440KΩ	200Ω	.1Ω
6	7Y4	0Ω	INF.	450Ω	INF.	INF.	500Ω	140KΩ	.1Ω

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

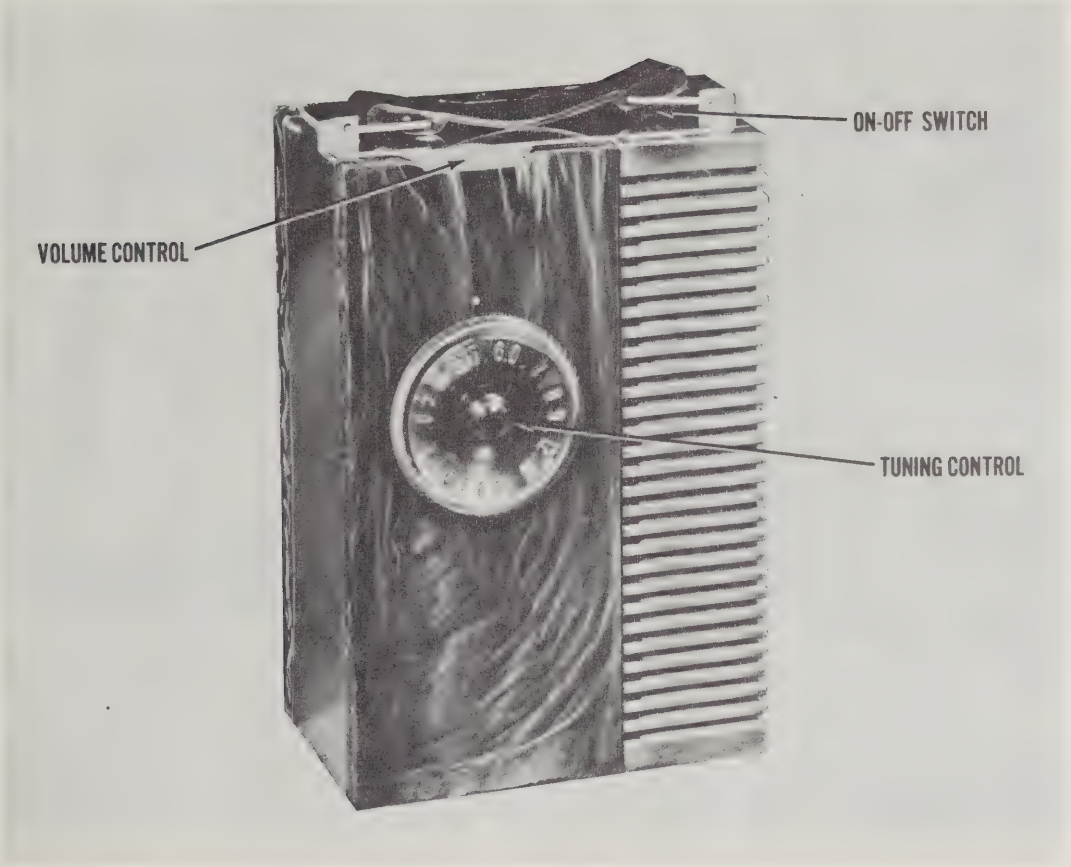
1 - DC Voltages measurements are at 20,000 ohms per volt; AC. Voltages measured at 1000 ohms per volt.
2 - Socket connections are shown as bottom views.
3 - Measured values are from socket pin to common negative.
4 - Battery voltage maintained at 6.3 volts for voltage readings.
5 - Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6 - Volume control at maximum, no signal applied for volt age measurements.



DIAL CORD DRIVE



The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.



RCA
MODEL 54B5

RCA
MODEL 54B5

RCA MODEL 54B5

TRADE NAME	RCA, Model 54B5 (Chassis RC1047)
MANUFACTURER	RCA Victor Div., Radio Corp. of America, Camden, N.J.
TYPE SET	Battery Operated Portable Superheterodyne - Self Contained Loop Antenna
TUBES (FOUR)	Types, 1R5 Converter, 1T4 IF Amp., 1S5 Det.-AVC-AF, 3S4 Power Output.
POWER SUPPLY RATING	1½ Volt "A" Battery & 67½ Volt "B" Battery 240MA @ 1½ Volts DC & 8MA @ 67 Volts DC
TUNING RANGE—BROADCAST	550-1600KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Loop should be maintained in same relative position to chassis as when receiver is in cabinet. Volume control at maximum position. Output of signal generator should be no higher than necessary to obtain output reading. Use an insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.01 MFD.	High side to stator of large section of tuning cap. Low side to chassis.	455KC	Tuning cap. fully open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output.
	Loop	1600KC	"	"	A5	Fashion loop of two turns of wire and radiate signal into loop of set. Adjust for maximum output.
	"	1500KC	Tune for maximum output.	"	A6	"
	"	600KC	"	"	A7	Rock tuning cap and adjust for maximum output. Repeat last three steps.

HOWARD W. SAMS & CO., INC. **Indianapolis Indiana**

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed." "Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1947 by Howard W. Sams & Co., Inc., Indianapolis, Indiana, U. S. A. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc."

PARTS LIST AND DESCRIPTIONS

RCA MODEL 54B5

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		RCA PART No.	STANDARD REPLACEMENT		
1	Converter	1R5	1R5	7AT	
2	IF Amp.	1T4	1T4	6AR	
3	Det.-AVC-AF	1S5	1S5	6AU	
4	Power Output	3S4	3S4	7BA	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT	RCA PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	
5	10	60	36718	PRS150-12	BR1215	TC42	M-10-150	UT-121	Pwr. Supp. Bypass
6	.005	600	70627	684-005	DT6D6	TP409	S-6-005	TC-26	Output Plate Bypass
7	.002	150	72315		ZY4D2	MT107	TTF-1.5-002		Audio Coupling
8	.02	100	70453		ZY1S2	MT127	TTF-1.5-02		Audio Screen Bypass
9	.002	150	72315		ZY4D2	MT107	TTF-1.5-002		Audio Coupling
10	.02	100	70453		ZY1S2	MT127	TTF-1.5-02		Screen Bypass
11	.05	400	71013	484-05	DT4S5	TP426	S-4-05	TC-15	AVC Filter
12	82		71514						Diode Filter Cer.
13	33		33111						" " "
14	56		71924						Osc. Grid Capacitor Cer.

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA				INSTALLATION NOTES
	RESISTANCE	WATTS	RCA PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
15	2 Meg.	1	72228				Volume Control K98539-2

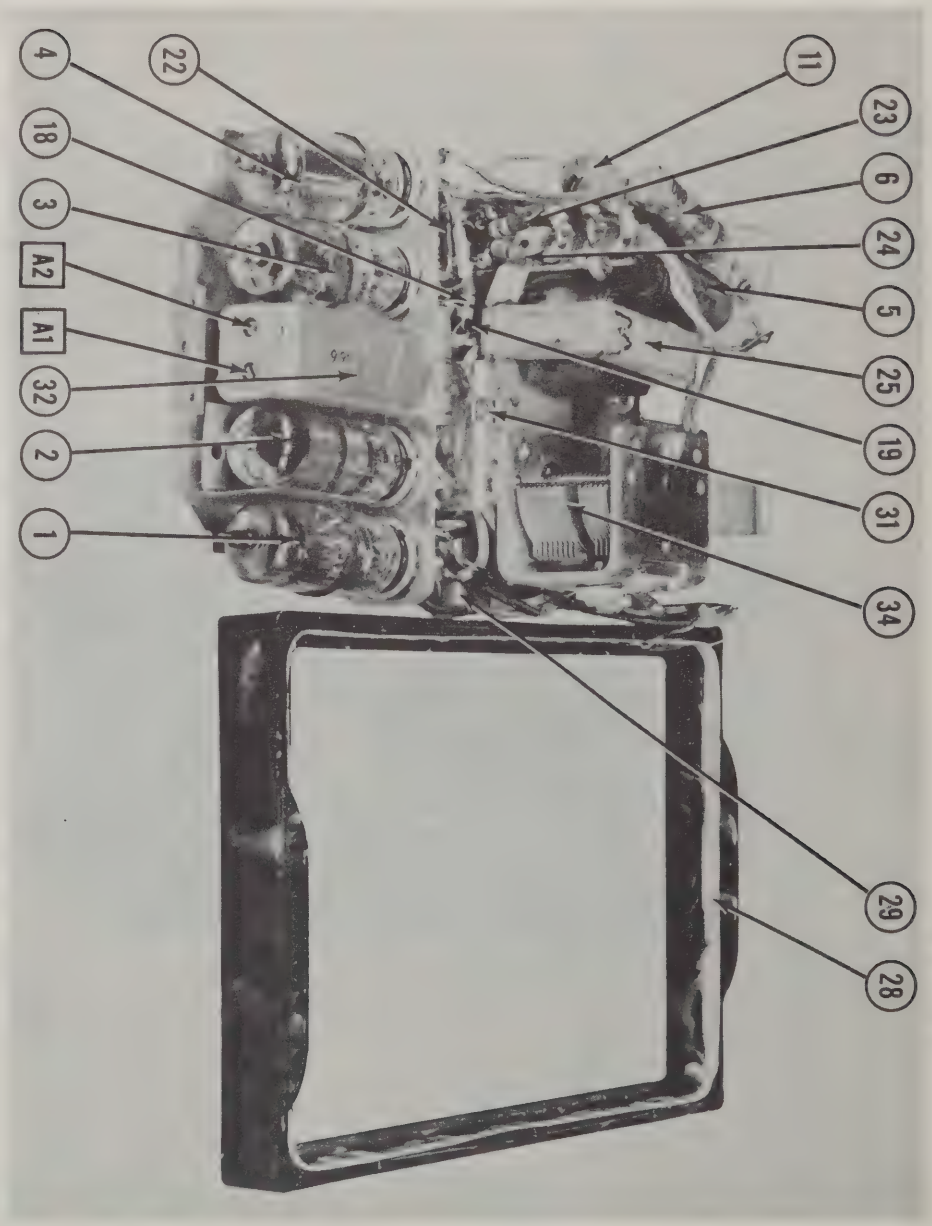
RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	RCA PART No.	IRC PART No.	
16	100KΩ	1/4	3252	BTS-100K	Br.-Blk.-Yl. Oscillator Grid
17	15KΩ	1/4	36714	BTS-15K	Br.-Grn.-Or. Screen Dropping
18	3.3 Meg.	1/4	31417	BTS-3.3 Meg.	Or.-Or.-Grn. AVC Network
19	68KΩ	1/4	14138	BTS-68K	Blue-Gray-Or. Diode RF Filter
20	10 Meg.	1/4	30992	BTS-10 Meg.	Br.-Blk.-Blue AF Grid
21	4.7 Meg.	1/4	30931	BTS-4.7 Meg.	Yl.-Vi.-Grn. AF Screen Dropping
22	1 Meg.	1/4	30652	BTS-1 Meg.	Br.-Blk.-Grn. AF Plate Load
23	3.3 Meg.	1/4	31417	BTS-3.3 Meg.	Or.-Or.-Grn. Output Grid
24	820Ω	1/4	14076	BTS-820	Gray-Red-Br. Bias

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		RCA PART No.	STANCOR PART No.	THORDAR'N PART No.		
	PRI.	SEC.	PRI.	SEC.					
25	6700Ω	12Ω	600Ω	2.7Ω	70440		T22S46*		*Bend one flange down and solder to chassis. Original Part. 94186-504

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA RCA PART No.	JENSEN PART No.		INSTALLATION NOTES
26	FIELD PM	VC IMP. 12Ω	70428			Original Part No. 92523-3W
27	CONE DIA. 1-3/4" x 2-1/2"	VC DIA. 7/16"	NOT READILY REPLACEABLE - USE COMPLETE SPEAKER UNIT.			

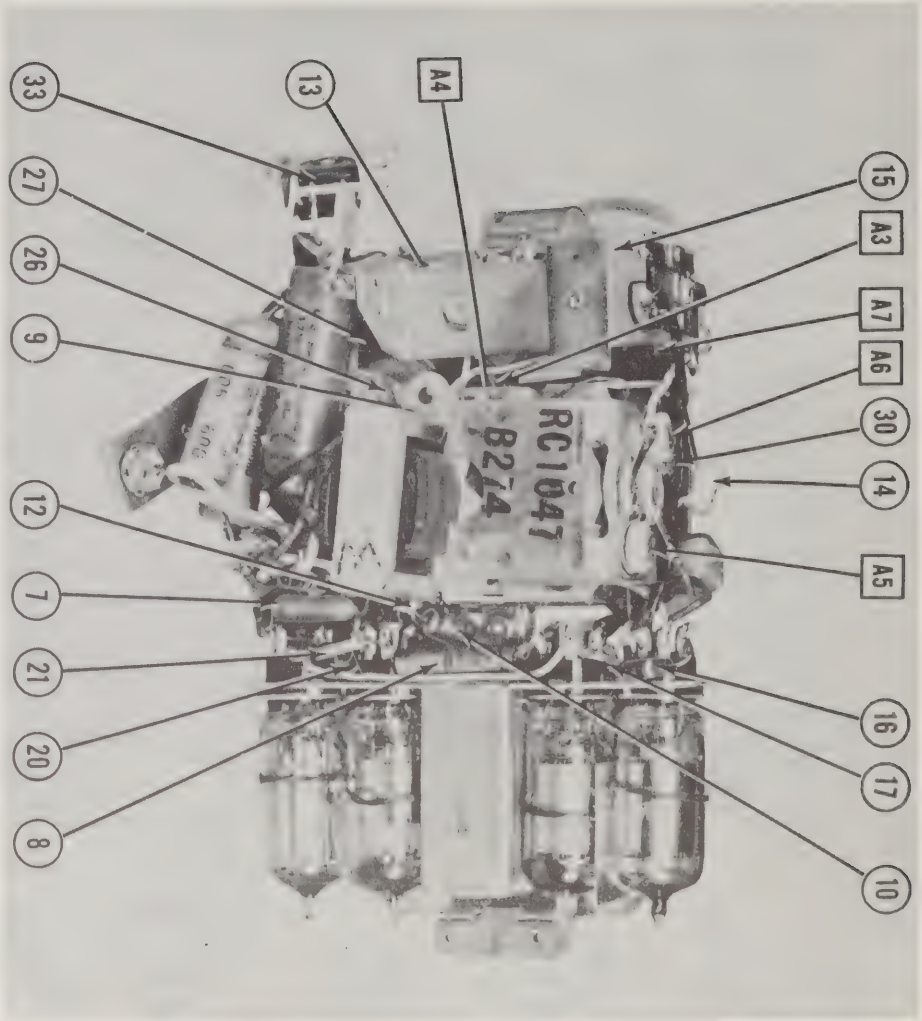
R F COILS

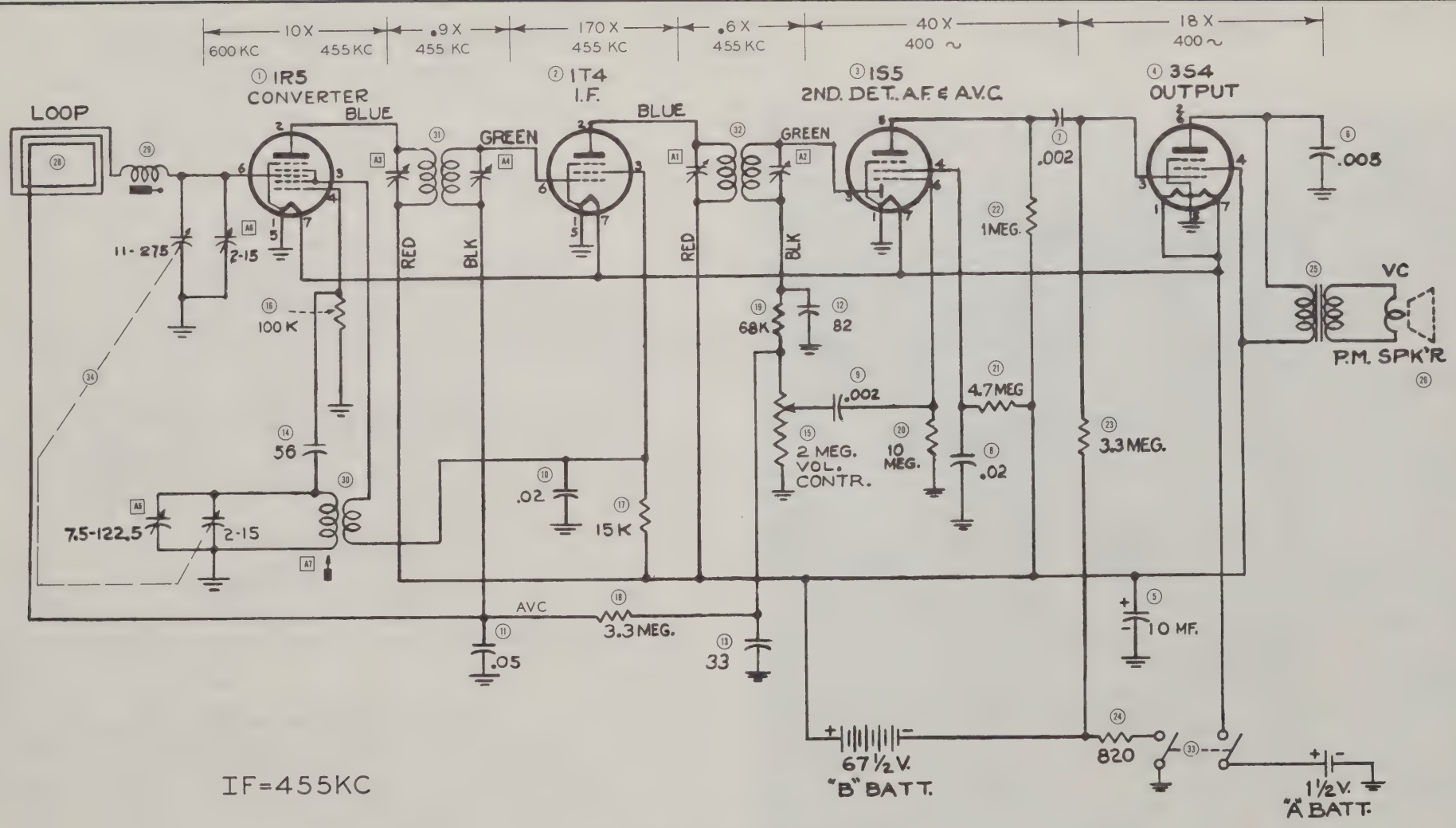
ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA RCA PART No.	MEISSNER PART No.
28	Loop Ant.		2Ω	72244	
29	Loop Loading Coil		2Ω	72215	
30	Osc. Coil	1Ω	4Ω	70443	
31	Input IF	20Ω	20Ω	70442	
32	Output IF	39Ω	39Ω	70437	

MISCELLANEOUS

ITEM No.	PART NAME	RCA PART No.	NOTES
33	On-Off Switch	72231	DPST
34	2 Gang Var. Cap	72227	(25-314MMF), (22-141MMF)
	"A" Battery	VS036 or VS001	Eveready Type 950
	"B" Battery	VS016	Eveready Type 467

CHASSIS—BOTTOM VIEW





*DO NOT USE OHMMETER TO MEASURE FILAMENT RESISTANCE.

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
1	1R5	0V.	58V.DC	35V.DC	-2V.DC	0V.	0V.	1.4 V.DC
2	1T4	0V.	58V.DC	35V.DC	58V.DC	0V.	0V.	1.4 V.DC
3	1S5	0V.	0V.	0V.	10V.DC	12 V.DC	-0.5V.DC	1.4 V.DC
4	3S4	1.4 V.DC	55V.DC	-2V.DC	58V.DC	0V.	55V.DC	1.4 V.DC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
1	1R5	*	100KΩ	115KΩ	100KΩ	0Ω	4 MEG.	*
2	1T4	*	100KΩ	115KΩ	100KΩ	0Ω	4 MEG.	*
3	1S5	*	1.8MEG.	1.8MEG.	4.7MEG.	1.4MEG.	10MEG.	*
4	3S4	*	100KΩ	3MEG.	97KΩ	0Ω	100KΩ	*

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

477-25

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is shorted to chassis.

1. DC Voltage measurements are at 20,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
5. Volume control at maximum, no signal applied for voltage measurements.

RCA MODEL 66E

TRADE NAME	RCA, Model 66E (Ch. RS-126)
MANUFACTURER	Radio Corp. of America, RCA Victor Div., Camden, N.J.
TYPE SET	AC Operated Phonograph with 6 Tube Amplifier & Speaker
TUBES (SIX)	Types, 6J5 1st AF Amp., 6SQ7 2nd AF Amp., 6SQ7 Phase Inverter, (2) 6K6GT Power Output, 5Y3GT Rectifier.
POWER SUPPLY	105-125 Volts AC RATING .580 Amp. @ 117 Volts AC

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6J5	OV.	6.3V.AC	120V.DC	OV.	OV.	207V.DC	OV.	3.8V.DC
2	6SQ7	OV.	OV.	18V.DC	OV.	OV.	165V.DC	6.3V.AC	OV.
3	6SQ7	OV.	OV.	18V.DC	OV.	OV.	155V.DC	OV.	6.3V.AC
4	6K6GT	OV.	OV.	352V.DC	300V.DC	OV.	OV.	6.3V.AC	24V.AC
5	6K6GT	OV.	OV.	352V.DC	300V.DC	OV.	OV.	6.3V.AC	24V.DC
6	5Y3GT/G	OV.	368V.DC	OV.	315V.AC	OV.	315V.AC	OV.	368V.DC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6J5	0Ω	.1Ω	150KΩ	112KΩ	95KΩ	112KΩ	0Ω	1500Ω
2	6SQ7	0Ω	1.5MEG.	2500Ω	0Ω	0Ω	370KΩ	.1Ω	0Ω
3	6SQ7	0Ω	1MEG.	2500Ω	0Ω	0Ω	370KΩ	.0Ω	.9Ω
4	6K6GT	0Ω	0Ω	95KΩ	95KΩ	440KΩ	7KΩ	.1Ω	325Ω
5	6K6GT	0Ω	0Ω	95KΩ	95KΩ	460KΩ	INF.	.1Ω	325Ω
6	5Y3GT/G	0Ω	95KΩ	INF.	225Ω	INF.	23.5Ω	INF.	95KΩ

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

1. DC Voltage measurements are at 20,000 ohms per volt. AC Voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

HOWARD W. SAMS & CO., INC. **Indianapolis Indiana**

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed." "Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1947 by Howard W. Sams & Co., Inc., Indianapolis, Indiana, U. S. A. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc."

PARTS LIST AND DESCRIPTIONS

RCA MODEL 66E

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: RCA PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	1st AF Amp.	6J5	6J5	6Q	
2	2nd AF Amp.	6SQ7	6SQ7	8Q	
3	Phase Inverter	6SQ7	6SQ7	8Q	
4	Power Output	6K6GT	6K6GT	7S	
5	Power Output	6K6GT	6K6GT	7S	
6	Rectifier	5Y3GT	5Y3GT	5T	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: RCA PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
7A	20	450	71976	AF44J	UP6BJ38	FP339	DY-312	EL-330	■ Filter 95695-3
B	30	350							▲ " "
C	20	25		PRS25-25	BR202A				Cath. Bypass
8A	20	350		AF44J	UP6CJ17	FP330	DY-20-350	EL-323	■ Filter 86054-6
B	20	25					M-2x20-25		▲ Cath. Bypass
C	20	25		PRS25-25					" "
9	.0035	1000	70646	1084-003	MD16D3	TP457	TM-10-003	TR-23	Output Plate Bypass
10	.0035	1000	70646	1084-003	MD16D3	TP457	TM-10-003	TR-23	" " "
11	.01	400	70610	484-01	DT4S1	TP421	S-4-01	TC-11	Audio Coupling
12	.02	400	70611	484-02	DT4S2	TP423	S-4-02	TC-12	" "
13	.01	400	70610	484-01	DT4S1	TP421	S-4-01	TC-11	Tone Compensation
14	.0035	400	70604	484-003	DT6D3	TP406	S-6-003	TC-23	" "
15	.005	600	70606	684-005	DT6D5	TP408	S-6-005	TC-25	" "
16	.015	600	71135	684-015	DT6S15	TP411	S-6-015	TC-11	" "
17	.01	400	70610	484-01	DT4S1	TP421	S-4-01	TC-11	Audio Coupling
18	.005	600	70606	684-005	DT6D5	TP408	S-6-005	TC-25	Tone Compensation
19	560	500	39646	1468-0005	5W5T5	MC245	MO.5-31	1FM-35	Audio Coupling
20	560	500	39640	1468-0005	5W5T5	MC245	MO.5-31	1FM-35	1st AF Plate Bypass

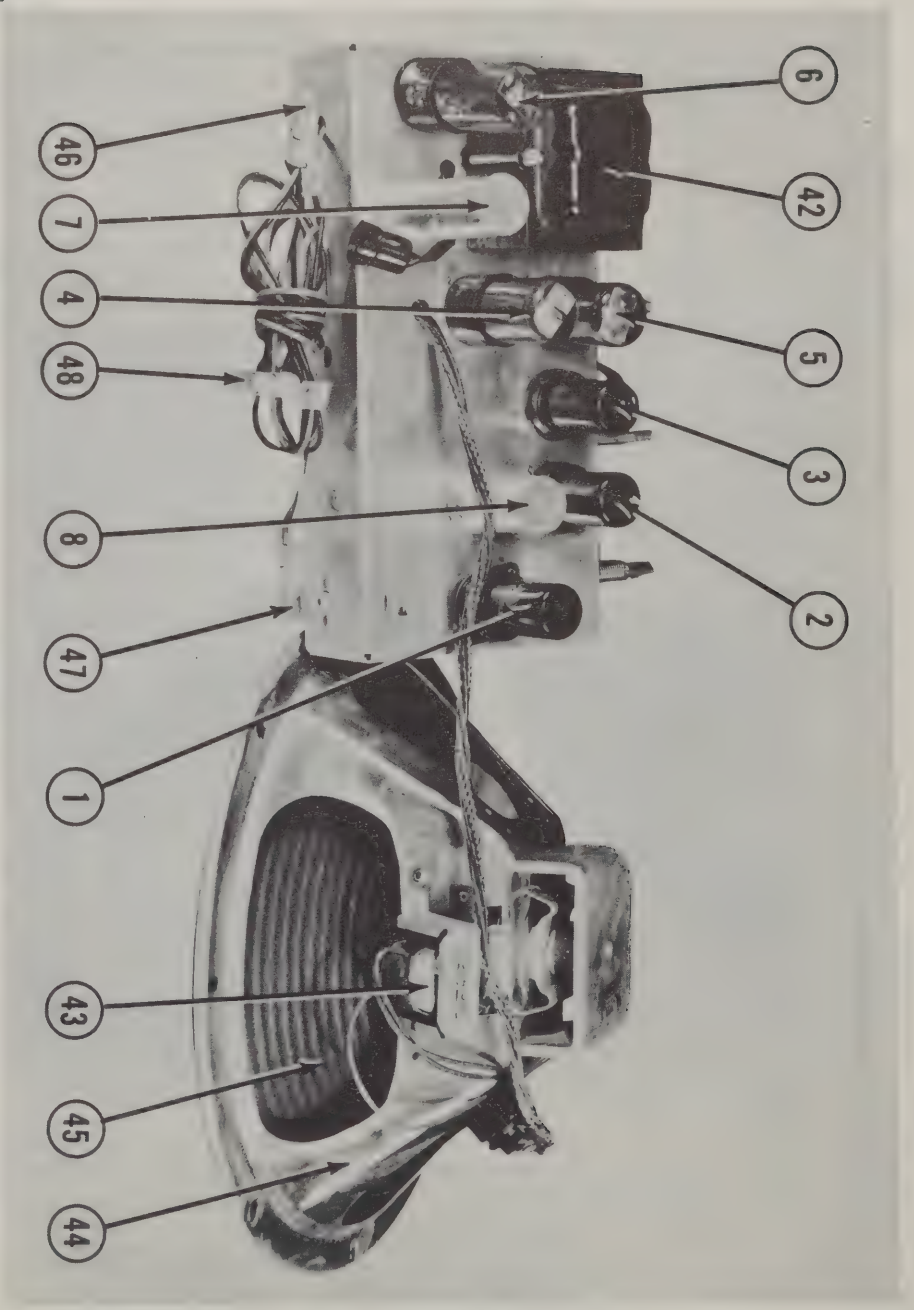
CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: RCA PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
21A	1.5 Meg.	1	71980	DTM291		T-95	Volume Control
B	Shaft		Not Req.	Not Req.		Not Req.	Attach to 21A per instructions
22A	2 Meg.	1	38402	MR55	D13-139	M-66-Z	L.F. Tone Control
B	Shaft		Not Req.	Not Req.	A	Not Req.	Attach to 22A per instructions
C	Switch		" "	M26	41	SW-A	" " " " "
23A	1 Meg.	1	38405	MR53	D13-137	M-63-Z	HF Tone Control
B	Shaft		Not Req.	Not Req.	A	Not Req.	Attach to 23A per instructions

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: RCA PART No.	IRC PART No.	IDENTIFICATION CODES
24	22KΩ	½	30492	BTS-22K	Red-Red-Or. Tone Compensation
25	100KΩ	½	3252	BTS-100K	Br.-Blk.-Yl. AF Grid
26	1800Ω	½	30930	BTS-1800	Br.-Gray-Red AF Cathode
27	18KΩ	½	3219	BTS-18K	Br.-Gray-Or. AF Plate Load
28	15KΩ	½	36714	BTS-15K	Br.-Grn.-Or. AF Plate Decoupling
29	39KΩ	½	30147	BTS-39K	Or.-White-Or. Tone Compensation
30	22KΩ	½	30492	BTS-22K	Red-Red-Or. Tone Compensation
31	27KΩ	½	30409	BTS-27K	Red-Vi.-Or. Tone Compensation
32	2700Ω	½	30730	BTS-2700	Red-Vi.-Red 2nd AF Cathode
33	270KΩ	½	30651	BTS-270K	Red-Vi.-Yl. 2nd AF Plate Load
34	270KΩ	½	30651	BTS-270K	Red-Vi.-Yl. Phase Inverter Plate Load
35	1 Meg.	½	30652	BTS-1 Meg.	Br.-Blk.-Grn. Phase Inverter Grid
36	270KΩ	½	30651	BTS-270K	Red-Vi.-Yl. Tone Compensation
37	470KΩ	½	30648	BTS-470K	Yl.-Vi.-Yl. Output Grid
38	8200Ω	½	14250	BTS-8200	Gray-Red-Red Output Grid
39	470KΩ	½	30648	BTS-470K	Yl.-Vi.-Yl. Output Grid
40	390Ω	2	72325	BW-2-390	Or.-White-Br. Output Cathode
41	5600Ω	2	38886	BT-2-5600	Grn.-Blue-Red Filter

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA			INSTALLATION NOTES
	PRI.	SEC. 1	SEC. 2	SEC. 3	RCA PART No.	STANCOR PART No.	THORDARSON PART No.	
42	117V AC @ .58A	630V CT @ .065A	5.1V AC @ 1.8A	6.5V AC @ 2.5A	71975 (Orig.Part 94158-503)	P-6120*	T22R02	*Mount vertically with universal mounting brackets.

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		RCA PART No.	STANCOR PART No.	THORDAR'N PART No.		
	PRI.	SEC.	PRI.	SEC.					
43	15,000 Ω CT	2.2Ω	620Ω CT	.6Ω	97604-502 (Orig. Part	A-3823			

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
	FIELD	VC IMP.	RCA PART No.	JENSEN PART No.		
44	PM	2.2Ω	92569-1W			
	CONE DIA.	VC DIA.				
45	12"	1-3/8"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT			

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					RCA PART No.		
46	Bayonet	6-8	0.40	White	5117		Type 55
47	"	6-8	0.40	"	"		" "
48	"	7.5	0.20	"	11765		Type 51

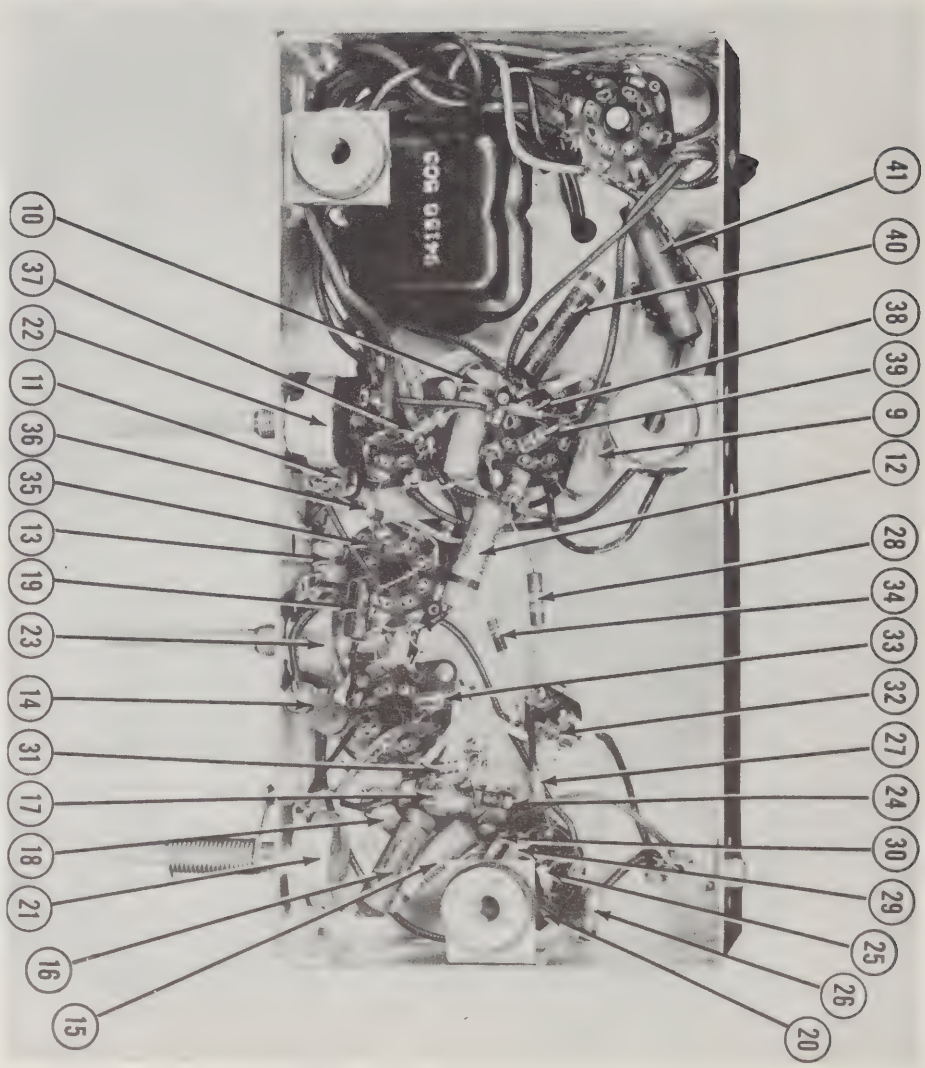
MISCELLANEOUS

ITEM No.	PART NAME	RCA PART No.	NOTES
	Switch	72203	Motor On-Off
	Phono Motor	71960	
	Crystal	70332	Sapphire Included
	Sapphire	38449	With Holder Assembly
	Pickup Arm	71294	Less Cartridge

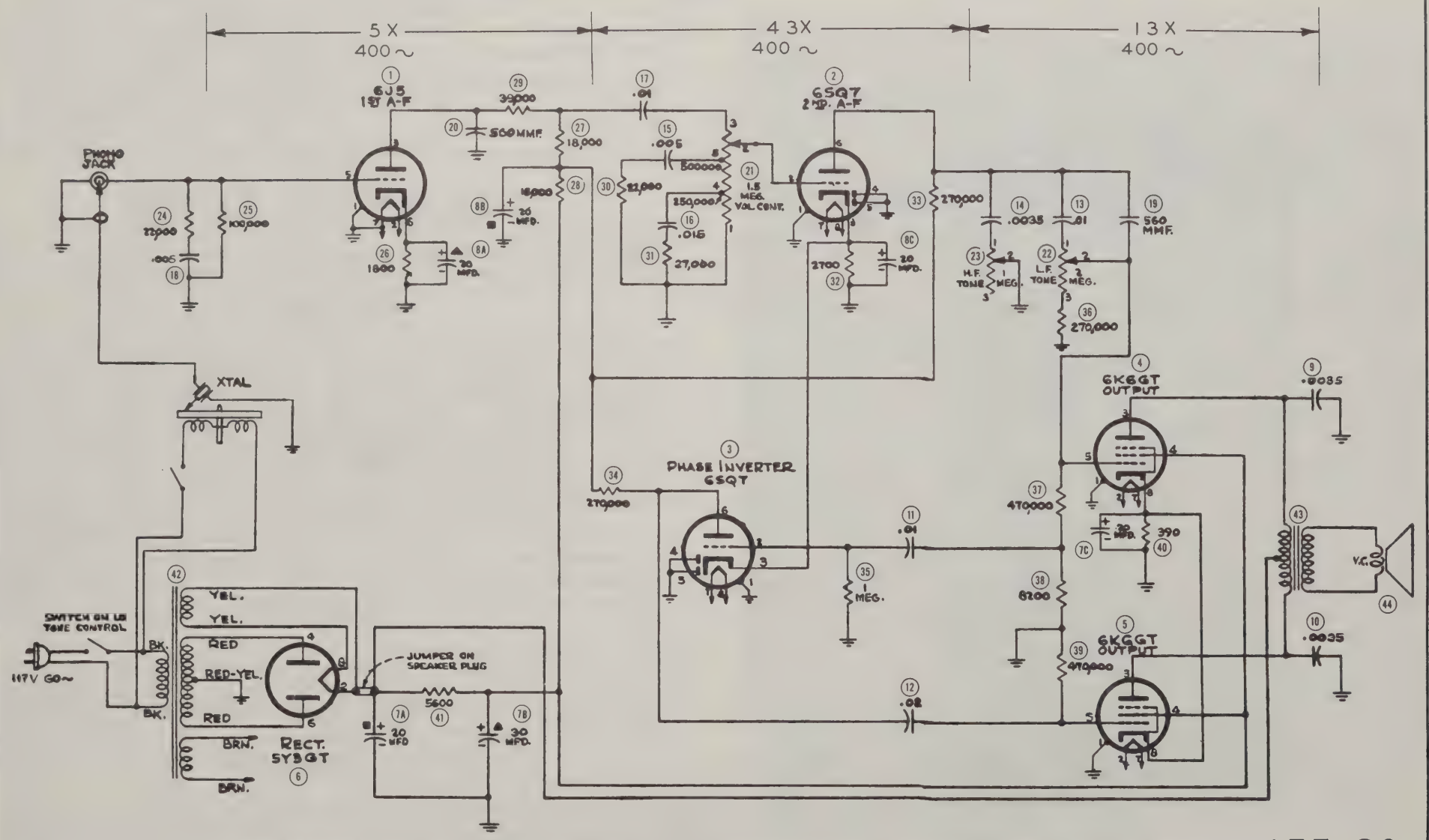
DISASSEMBLY INSTRUCTIONS

1. Remove three push-on type control knobs.
2. Remove plug button under phono compartment light.
3. Remove two screws holding phono compartment light bracket.
4. Remove light from bracket and cover for wires. Push light through hole in cabinet.
5. Remove four screws holding rear panel. Remove panel.
6. Remove phono-motor plug from chassis.
7. Remove phono-pickup plug from chassis.
8. Remove speaker plug from speaker.
9. Remove pilot light over controls from bracket.
10. Remove six screws holding panel over top rear of speaker.
11. Remove pilot light at front of cabinet from bracket.
12. Remove three chassis mounting bolts. Remove chassis.
13. Remove five wood screws holding bottom cover board under speaker. Remove board.
14. Remove three hex nuts holding speaker. Remove speaker.

CHASSIS—BOTTOM VIEW

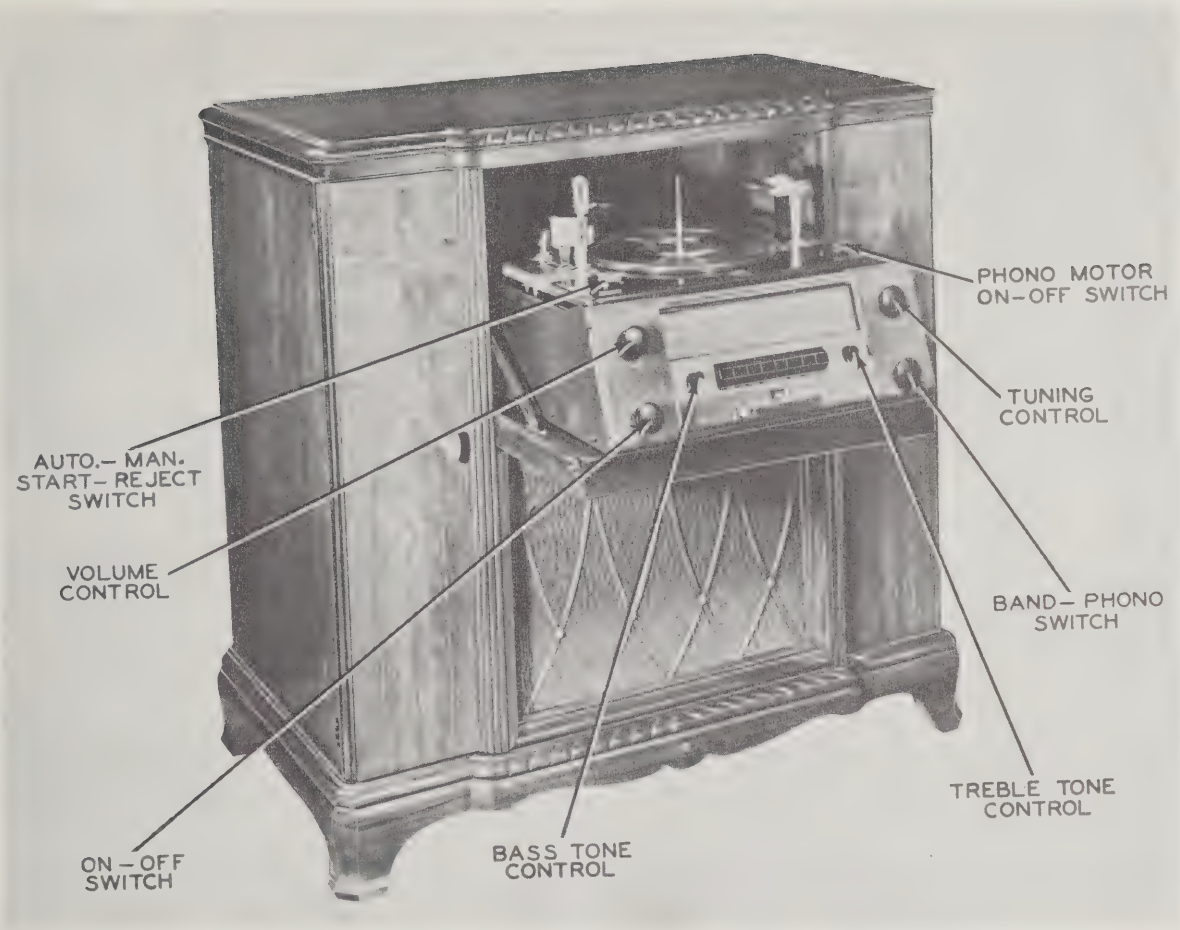


RCA MODEL 66E



THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

RCA
MODELS 612V1, 612V2, 612V3



RCA MODEL 612V3

TRADE NAME	RCA, Models 612V1, 612V2, 612V3 (Chassis RK-121 Rcvr. & RS-123 Audio and Power Supply)
MANUFACTURER	RCA Victor Div., Radio Corporation of America, Camden, N. J.
TYPE SET	AC Operated Phono-Radio Combination FM-AM Superheterodyne with Self Contained Loop Antenna.
TUBES(TWELVE)	Types, 6BA6 RF Amp., 6BA6 Mixer, 6BE6 Oscillator, 6BA6 1st IF Amp., 6AU6 2nd IF Amp.-Phono Amp., 6AU6 Driver, 6AL5 Ratio Detector, 6AT6 AM Det.-AVC-AF, 6J5 Phase Inv., (2) 6F6G Power Output, 5U4G Rectifier.
POWER SUPPLY	110-120 Volts AC
RATING	1.2 Amp. @ 117 Volts AC
FREQUENCY RANGES: BROADCAST 540-1600KC - SHORT WAVE 9.2-16.0MC - FREQ. MOD. 88-108MC	

RCA
MODELS 612V1, 612V2, 612V3

HOWARD W. SAMS & CO., INC. - Indianapolis Indiana

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed." "Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1947 by Howard W. Sams & Co., Inc., Indianapolis, Indiana, U. S. A. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc."

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: RCA PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	RF Amp.	6BA6	6BA6	7CC	
2	Mixer	6BA6	6BA6	7CC	
3	Oscillator	6BE6	6BE6	7CH	
4	1st IF	6BA6	6BA6	7CC	
5	2nd IF Phono-Amp.	6AU6	6AU6	7BK	
6	Driver	6AU6	6AU6	7BK	
7	Ratio Detector	6AL5	6AL5	6BT	
8	AM-Det.-AVC-AF	6AT6	6AT6	7BT	
9	Phase Inverter	6J5	6J5	6Q	
10	Power Output	6F6G	6F6G	7S	
11	Power Output	6F6G	6F6G	7S	
12	Rectifier	5U4G	5U4G	5T	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: RCA PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
13A	30	450	36599	AF444J	UP9DJ56	FP238	DY-314		◓ Filter 86045-7
B	15	350				"			■ "
C	40	25		PRS25-50		TC29			▲ Bias Filter
14	16	150	31323	PRS150-16	BR1615	TC44	M-16-150	UT-161	Filter 86011-1
15	15	300	33879	AF3G	UP1AJ28	FP143	DY-20-350	EL-203	" 36028-1
16	5	50	72121	PRS-150-4	BR550	TC40	M-4-150	TA-55	Ratio Det.Bias 86011-28
17	5	50	72121	PRS-50/10	BR550	TC40	M-10-50	TA-55	Grid Filter 86011-28
18	.0035	1000	70646	1084-003	MD16D3	TP457	TM-10-003	TR-23	Output Plate Bypass
19	.0035	1000	70646	1084-003	MD16D3	TP457	TM-10-003	TR-23	" " "
20	.02	600	70632	684-02	DT6S2	TP412	S-6-02	TC-12	Audio Coupling
21	.02	600	70632	684-02	DT6S2	TP412	S-6-02	TC-12	" "
22	.05	200	72596	484-05	DT4S5	TP426	S-4-05	TC-15	" "
23	.005	400	71553	484-005	DT6D5	TP408	S-6-005	TC-25	Tone Compensation
24	.01	400	71925	484-01	DT4S1	TP421	S-4-01	TC-11	" "
25	.0012	400	72117	484-001	DT6D1	TP404	S-6-001	TC-21	" "
26	.05	200	71551	484-05	DT4S5	TP426	S-4-05	TC-15	Phono Coupling
27	.005	200	71926	484-005	DT6D5	TP408	S-6-005	TC-25	Tone Compensation
28	.05	200	71551	484-05	DT4S5	TP426	S-4-05	TC-15	Bias Filter
29	.01	600	70631	684-01	DT6S1	TP410	S-6-01	TC-11	RF Bypass Pwr. Supp.
30	.01	400	71588	484-01	DT4S1	TP421	S-4-01	TC-11	Line Bypass
31	.015	200	72120	484-015	DT4S15	TP400	S-4-01	TC-11	Tone Cpmpensation
32	.015	200	72120	484-015	DT4S15	TP400	S-4-01	TC-11	" "
33	.01	200	71923	484-01	DT4S1	TP421	S-4-01	TC-11	Audio Coupling
34	.01	400	71925	484-01	DT4S1	TP421	S-4-01	TC-11	" "
35	.05	200	71551	484-05	DT4S5	TP426	S-4-05	TC-11	AVC Filter
36	.003	200	71921	484-003	DT6D3	TP406	S-6-003	TC-23	" "
37	.005	200	71926	484-005	DT6D5	TP408	S-6-005	TC-25	Ratio Detector Loads
38	.005	200	71926	484-005	DT6D5	TP408	S-6-005	TC-25	" " "
39	.005	200	71926	484-005	DT6D5	TP408	S-6-005	TC-25	De-emphasis
40	.005	400	71553	484-005	DT6D5	TP408	S-6-005	TC-25	Driver Plate Decoup.
41	.005	400	71553	484-005	DT6D5	TP408	S-6-005	TC-25	Driver Screen Bypass
42	.005	200	71926	484-005	DT6D5	TP408	S-6-005	TC-25	Driver Grid Filter
43	.005	400	71553	484-005	DT6D5	TP408	S-6-005	TC-25	2nd IF Plate Decoup.
44	.002	400	71927	484-002	DT6D2	TP405	S-6-002	TC-22	2nd IF Screen Bypass
45	.01	400	71925	484-01	DT4S1	TP421	S-4-01	TC-11	Audio Coupling
46	.005	400	71553	484-005	DT6D5	TP408	S-6-005	TC-25	1st IF Plate Decoup.
47	.005	200	71926	484-005	DT6D5	TP408	S-6-005	TC-25	1st IF Screen Bypass
48	.005	200	71926	484-005	DT6D5	TP408	S-6-005	TC-25	RF Bypass Pwr. Supp.
49	.05	200	71551	484-05	DT4S5	TP426	S-4-05	TC-15	1st IF Grid Filter
50	.01	400	71925	484-01	DT4S1	TP421	S-4-01	TC-11	Mixer Plate Decoup.
51	.003	200	71921	484-003	DT6D3	TP406	S-6-003	TC-23	Mixer Screen Bypass
52	.003	200	71921	484-003	DT6D3	TP406	S-6-003	TC-23	Mixer Cath. Bypass
53	.003	200	71921	484-003	DT6D3	TP406	S-6-003	TC-23	RF Screen Bypass
54	.01	400	71925	484-01	DT4S1	TP421	S-4-01	TC-11	Osc. Feedback
55	.005	400	71553	484-005	DT6D5	TP408	S-6-005	TC-25	Osc. Decoupling
56	.01	200	71923	484-01	DT4S1	TP421	S-4-01	TC-11	Filament Bypass
57	.01	200	71923	484-01	DT4S1	TP421	S-4-01	TC-11	" "
58	1000		71929	1468-001	1W5D1	MC255	MW.5-21	1FM-21	Ratio Det. Filter Cer.
59	180	500	39644						Osc. Screen Bypass
60	180		71922						Fixed Trimmer Cer.

PARTS LIST AND DESCRIPTIONS (Continued)

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: RCA PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
61	18								Osc. Grid Capacitor Cer.
62	100		45233	1468-0001	5W5T1	MC235	MO.5-31	1FM-31	Filament Bypass Cer.
63	100		45233	1468-0001	5W5T1	MC235	MO.5-31	1FM-31	Osc. Grid Capacitor Cer.
64	6.8		39043						Osc. Coupling Cer.
65	56		71924						RF Coupling Cer.
66	220		71920				MO.5-322		" " "
67	330		71919				MO.5-333		Fixed Padder Cer.
68	5.6		71930						RF Coupling Cer.
69	220		71920				MO.5-322		" " "
70	100		45233	1468-0001	5W5T1	MC235	MO.5-31	1FM-31	RF Grid Filter Cer.
71	330		71919				MO.5-333		Fixed Padder Cer.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: RCA PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
72A	1.5 Meg.	1	71596	DTM291*	D18-139XX*	T-95*	Volume Control
B	Shaft		Not Req.	Not Req.	A	Not Req.	Attach to 72A per instructions
73A	1 Meg.	1	38405	MR53	D13-137	M-63-Z	HF Tone Control
B	Shaft		Not Req.	Not Req.	A	Not Req.	Attach to 73A per instructions
74A	2 Meg.	1	38401	MR55	D13-139	M-66-Z	LF Tone Control
B	Shaft		Not Req.	Not Req.	A	Not Req.	Attach to 74A per instructions

*Use original spacer nut between chassis and front panel.

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: RCA PART No.	IRC PART No.	IDENTIFICATION CODES
75	1 Meg.	½	30652	BTS-1 Meg.	Br.-Blk.-Grn. FM Antenna Loading
76	1 Meg.	½	30652	BTS-1 Meg.	Br.-Blk.-Grn. RF Grid
77	22KΩ	½	30492	BTS-22K	Red-Red-Or. AVC Network
78	4700Ω	½	30494	BTS-4700	Yl.-Vi.-Red RF Screen Dropping
79	390Ω	½	30498	BW-½-390	Or.-White-Br. Mixer Cathode
80	3.9 Meg.	½	70592	BTS-3.9 Meg.	Or.-White-Grn. Mixer Grid
81	2200Ω	½	34767	BTS-2200	Red-Red-Red RF Coil Shunt BC
82	3Ω	½	72323	BW-½-3.3	Or.-Blk.-Gold Series Pilot Light
83	22KΩ	½	30492	BTS-22K	Red-Red-Or. Oscillator Grid
84	10KΩ	1	71914	BTA-10K	Br.-Blk.-Or. Oscillator Screen Dropping
85	15KΩ	1	71915	BTA-15K	Br.-Grn.-Or. Oscillator Plate Load
86	2200Ω	½	34767	BTS-2200	Red-Red-Red Mixer Cathode
87	27KΩ	½	30409	BTS-27K	Red-Vi.-Or. Mixer Screen Dropping
88	2200Ω	½	34767	BTS-2200	Red-Red-Red Mixer Plate Decoupling
89	100Ω	½	34765	BW-½-100	Br.-Blk.-Br. Decoupling
90	22 Meg.	½	31917	BTS-22 Meg.	Red-Red-Blue AVC Network FM
91	1 Meg.	½	30652	BTS-1 Meg.	Br.-Blk.-Grn. AVC Network AM
92	8200Ω	½	14250	BTS-8200	Gray-Red-Red Oscillator Coil Shunt
93	2.2 Meg.	½	30649	BTS-2.2 Meg.	Red-Red-Grn. Bias Network
94	100KΩ	½	3252	BTS-100K	Br.-Blk.-Yl. " "
95	180KΩ	½	11959	BTS-180K	Br.-Gray-Yl. " "
96	470KΩ	½	30648	BTS-470K	Yl.-Vi.-Yl. 2nd IF Bias
97	22KΩ	½	30492	BTS-22K	Red-Red-Or. Tone Compensation
98	180KΩ	½	11959	BTS-180K	Br.-Gray-Yl. Phono Shunt
99	100Ω	½	34765	BW-½-100	Br.-Blk.-Br. 1st IF Cathode
100	1000Ω	½	34766	BTS-1000	Br.-Blk.-Red 1st IF Screen Dropping
101	2200Ω	½	34767	BTS-2200	Red-Red-Red 1st IF Plate Decoupling
102	270KΩ	½	30651	BTS-270K	Red-Vi.-Yl. Diode Load
103	22KΩ	½	30492	BTS-22K	Red-Red-Or. Diode RF Filter
104	15KΩ	½	36714	BTS-15K	Br.-Grn.-Or. 2nd IF Grid
105	18KΩ	½	3219	BTS-18K	Br.-Gray-Or. 2nd IF Screen Dropping
106	22KΩ	½	30492	BTS-22K	Red-Red-Or. 2nd IF Screen Decoupling
107	2200Ω	½	34767	BTS-2200	Red-Red-Red 2nd IF Plate Decoupling
108	2.2 Meg.	½	30649	BTS-2.2 Meg.	Red-Red-Grn. Tone Compensation
109	22KΩ	½	30492	BTS-22K	Red-Red-Or. Filter
110	270KΩ	½	30651	BTS-270K	Red-Vi.-Yl. 1st AF Plate Load
111	2.2 Meg.	½	30649	BTS-2.2 Meg.	Red-Red-Grn. 1st AF Grid
112	15KΩ	½	36714	BTS-15K	Br.-Grn.-Or. Driver Grid

PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	RCA PART No.	IRC PART No.	
113	22KΩ	1	71989	BTA-22K	Red-Red-Or. Driver Screen Dropping
114	1000Ω	±	34766	BTS-1000	Br.-Blk.-Red Driver Plate Decoupling
115	1000Ω	±	34766	BTS-1000	Br.-Blk.-Red Decoupling
116	15KΩ	±	36714	BTS-15K	Br.-Grn.-Or. Ratio Detector RF Filter
117	22KΩ	±	30492	BTS-22K	Red-Red-Or. Ratio Detector Bias Network
118	2.2 Meg.	±	30649	BTS-2.2 Meg.	Red-Red-Grn. AVC Network FM
119	22KΩ	±	30492	BTS-22K	Red-Red-Or. Tone Compensation
120	27KΩ	±	30409	BTS-27K	Red-Vi.-Or. Tone Compensation
121	100KΩ	±	3252	BTS-100K	Br.-Blk.-Yl. Television Input Shunt
122	270Ω	±	30629	BW-½-270	Red-Vi.-Br. Isolation
123	270KΩ	±	30651	BTS-270K	Red-Vi.-Yl. Tone Compensation
124	56KΩ	±	30650	BTS-56K	Grn.-Blue-Or. Phase Inverter Grid
125	2700Ω	±	30730	BTS-2700	Red-Vi.-Red Phase Inverter Cathode
126	22KΩ	±	30492	BTS-22K	Red-Red-Or. Phase Inverter Cathode
127	27KΩ	±	30409	BTS-27K	Red-Vi.-Or. Phase Inverter Plate Load
128	220KΩ	±	14583	BTS-220K	Red-Red-Yl. Output Grid
129	220KΩ	±	14583	BTS-220K	Red-Red-Yl. Output Grid
130A	2760Ω	9.3	71660	DG-2750	Bleeder
B	2520Ω	3.97		AB-2500	"
C	180Ω	3.5		AB-[illegible]	Bias-See Note

Note - On IRC replacement set slider at 180Ω from one end.

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA			INSTALLATION NOTES
	PRI.	SEC. 1	SEC. 2	SEC. 3	RCA PART No.	STANCOR PART No.	THORDARSON PART No.	
131	117V AC @ 1.2A	720V CT @ .137A	5.1V AC @ 2.8A	6.5V AC @ 4.25A	37048	P-6014	T22R06	Original Part No. 94161-501

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		RCA PART No.	STANCOR PART No.	THORDAR'N PART No.		
	PRI.	SEC.	PRI.	SEC.					
132	12000Ω CT	2.25Ω	600Ω	.3Ω	71061	A-3856†	T22S56†		†Drill new mounting holes. Original Part No. 540364-1

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
	FIELD RES.	VC IMP.	RCA PART No.	JENSEN PART No.		
133	1100Ω	2.25Ω	71144			Original Part No. 92567-2W
	CONE DIA.	VC DIA.				
134	11-7/8"	1-3/8"	36145			Field Coil Part No. 71146

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	RCA PART No.	MEISSNER PART No.	
135	Loop Ant.	70Ω	1.5Ω	71862		
136	Dipole Ant.			71864		
137	Loop Loading Coil		1.5Ω	71862		
138	SW Ant. Coil	.1Ω	.1Ω	71856		
139	FM Ant. Coil	0Ω	0Ω	71940		
140	BC RF Coil	41Ω	3.5Ω	71857		
141	SW RF Coil		0Ω	71854		
142	FM RF Coil		0Ω	71938		
143	RF Choke Coil		16Ω	71936		
144	BC Osc.Coil		4Ω	71852		
145	SW Osc.Coil		0Ω	71853		
146	FM Osc.Coil		0Ω	71937		

PARTS LIST AND DESCRIPTIONS (Continued)

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	RCA PART No.	MEISSNER PART No.	
147	Filament Choke Coil		.5Ω	71942		
148	Filament Choke Coil		.5Ω	71942		
149	Input IF(AM)	6Ω	6Ω	71846		
150	Output IF(AM)	6Ω	6Ω	71848		
151	Input IF(FM)	.1Ω	.3Ω	71845	16-6665	
152	Inter IF(FM)	.3Ω	.3Ω	71847		
153	Output IF(FM)	.3Ω	.3Ω	71849		
154	Driver Transformer	.3Ω	.2Ω	71935		
155	Ratio Det. Transformer		.1Ω	71934		

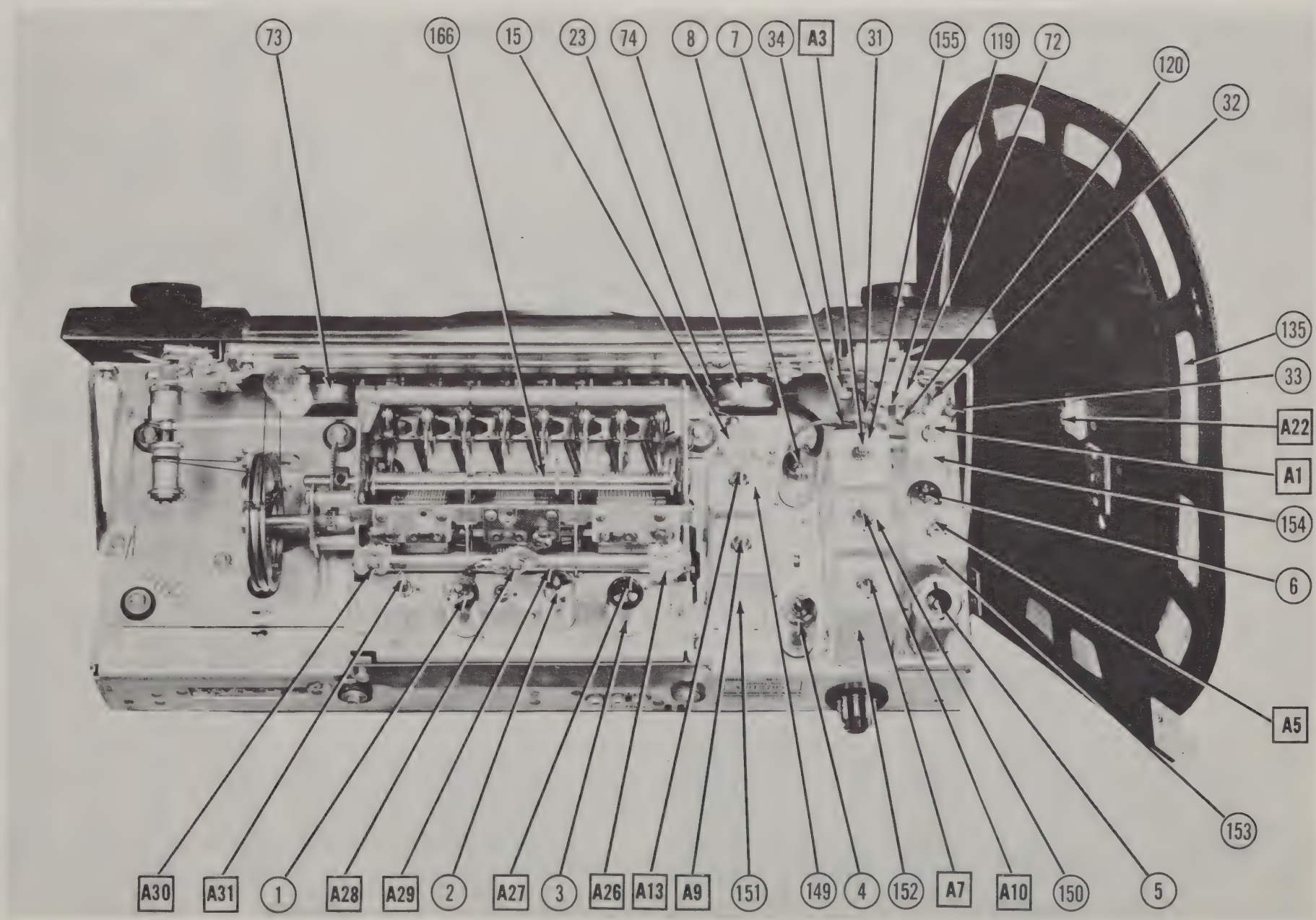
DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					RCA PART No.		
156	Bayonet	7.5	0.20	White	11705		Type 51
157	"	"	"	"	"		"
158	"	"	"	"	"		"
159	"	"	"	"	"		"
160	"	"	"	"	"		"
161	"	"	"	"	"		"
162	"	"	"	"	"		"
163	"	6.8	0.25	Blue	11841		Type 44

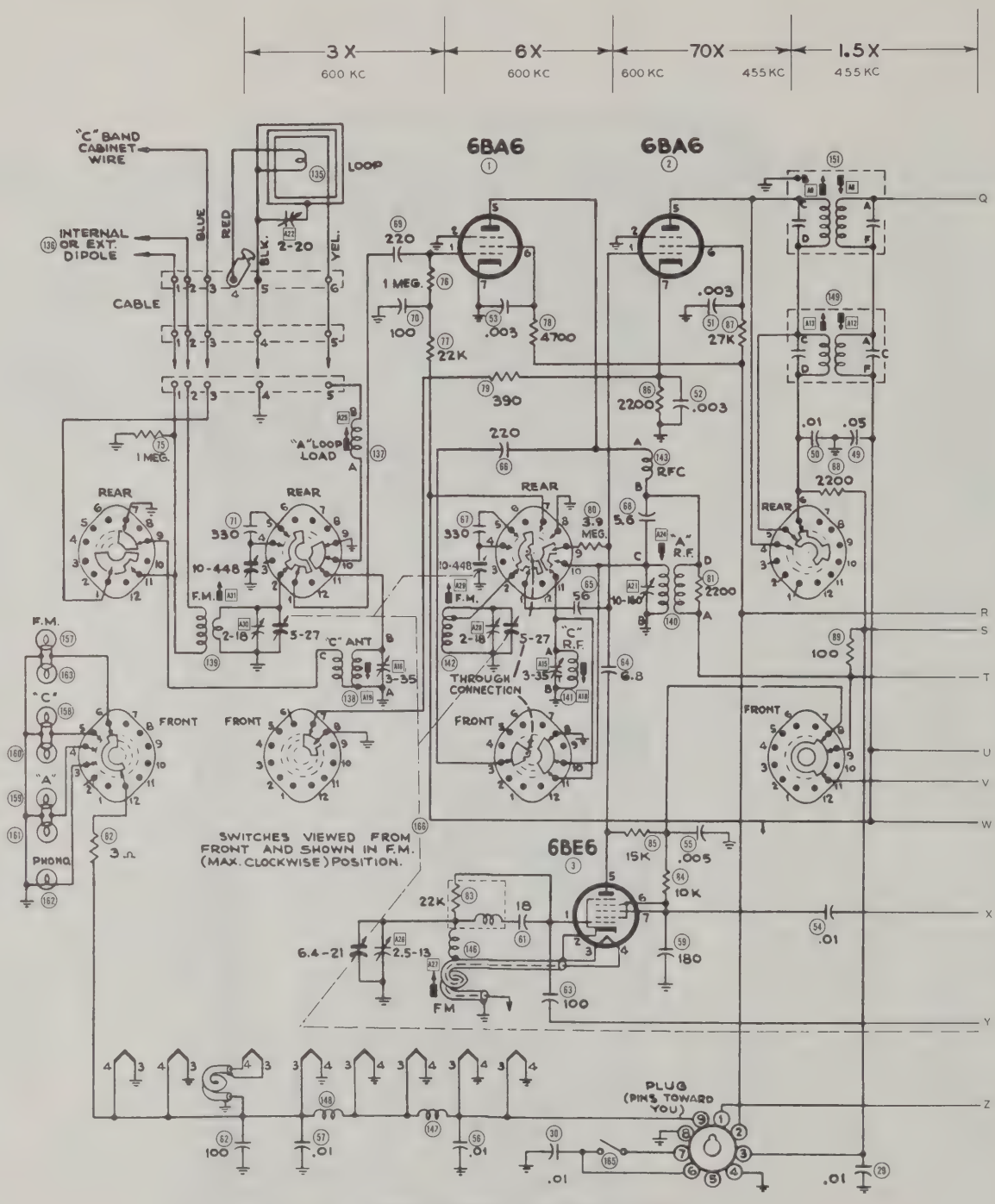
MISCELLANEOUS

ITEM No.	PART NAME	RCA PART No.	NOTES
164	Switch	71802	Band-Phono
165	Switch	71640	Power
166	Tuning Cap.		
A15	Trimmer Cap.	71807	10-160MMF
A16	" "	71807	10-160MMF
A20	" "	71808	3-35MMF
A21	" "	71809	1.6-18 MMF
A22	" "	38684	2-20MMF
A26	" "	71803	2.5-13 MMF
A28	" "	71804	1.6-18 MMF
A30	" "	71804	1.6-18 MMF
	Dial	71652	Short Wave
	Dial	71653	Broadcast
	Dial	71654	Freq. Mod.
	Indicator	71832	Station Selector

CHASSIS—TOP VIEW



CHASSIS—BOTTOM VIEW



VOLTAGE AND RESISTANCE TAKEN IN BROADCAST POSITION

* VOLTAGE AND RESISTANCE TAKEN IN F.M. POSITION

IF=455KC (AM)

IF=10.7MC (FM)

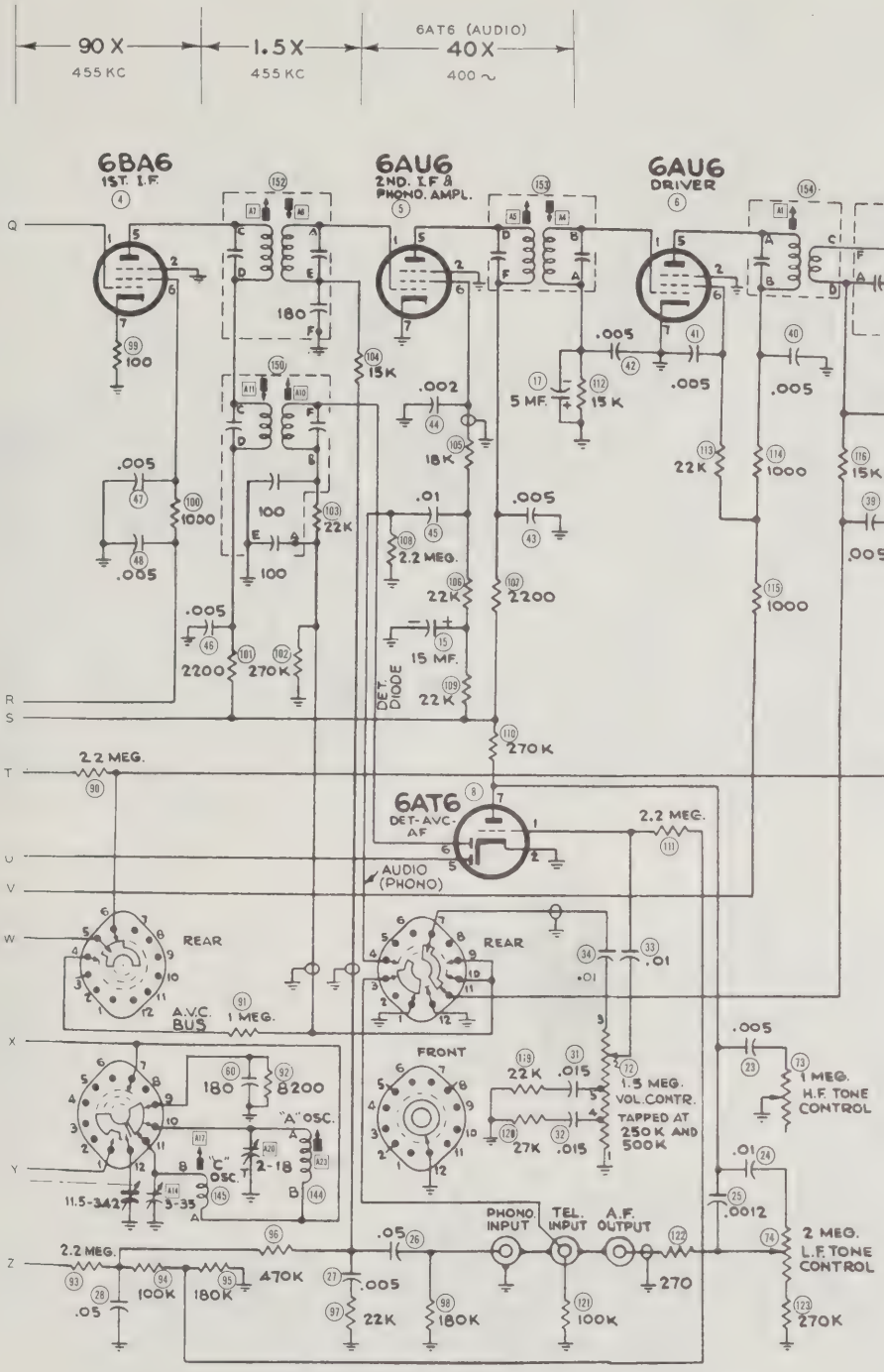
VOLTAGE READINGS

ITEM	TUBE	PIN 1	PIN 2	PIN 3	PIN 4	PIN 5	PIN 6	PIN 7
1	6BA6	-.05V.DC	0V.	0V.	6.5V.AC	260V.DC	105V.DC	0V.
2	6BA6	-.8V.DC	0V.	0V.	6.5V.AC	260V.DC	90V.DC	1.3V.DC
3	6BE 6	-.2V.DC	0V.	0V.	6.5V.AC	133V.DC	152V.DC	0V.
4	6BA6	-.5V.DC	0V.	6.5V.AC	0V.	260V.DC	115V.DC	12V.DC
5	6AU6	-.8V.DC	0V.	6.5V.AC	0V.	260V.DC	165V.DC	0V.
6	6AU6	*-.5V.DC	* 0V.	*6.5V.AC	* 0V.	*220V.DC	*125V.DC	* 0V.
7	6AL5	* 0V.	*-.6V.DC	*6.5V.AC	* 0V.	* 0V.	* 0V.	*.3V.DC
8	6AT6	-.4V.DC	0V.	6.5V.AC	0V.	-.5V.DC	0V.	125V.DC

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

477-27

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.



VOLTAGE AND RESISTANCE TAKEN IN BROADCAST POSITION.

* VOLTAGE AND RESISTANCE TAKEN IN FM POSITION.

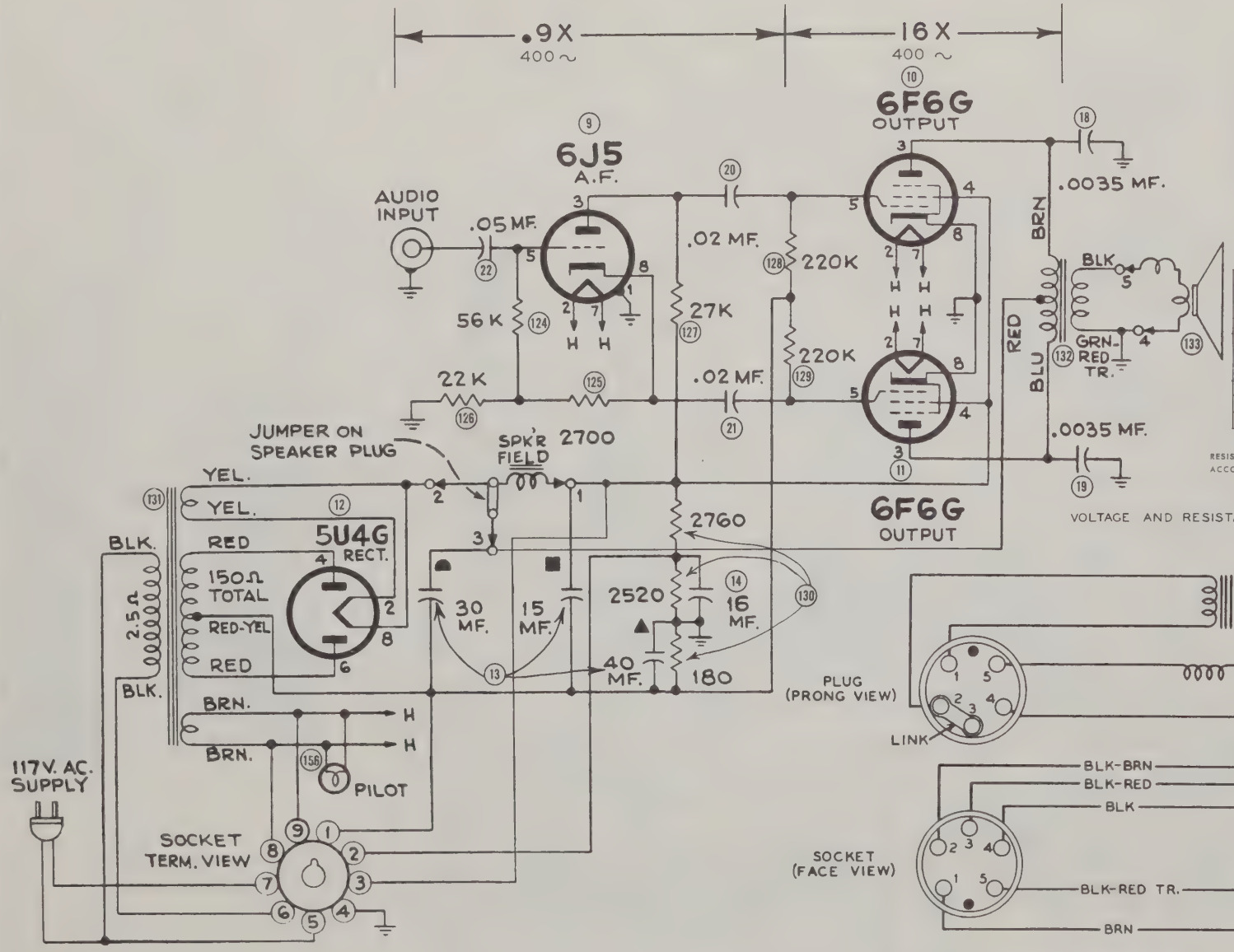
RESISTANCE READINGS

ITEM	TUBE	PIN 1	PIN 2	PIN 3	PIN 4	PIN 5	PIN 6	PIN 7
1	6BA6	2 MEG.	0Ω	0Ω	.1Ω	2200Ω	6500Ω	0Ω
2	6BA6	4.8MEG.	0Ω	0Ω	.1Ω	2200Ω	27KΩ	2200Ω
3	6BE6	18KΩ	0Ω	0Ω	.1Ω	15KΩ	12KΩ	0Ω
4	6BA6	12MEG.	0Ω	.1Ω	0Ω	2200Ω	3000Ω	90Ω
5	6AU6	670KΩ	0Ω	.1Ω	0Ω	2200Ω	60KΩ	0Ω
6	6AU6	*15KΩ	* 0Ω	* .1Ω	* 0Ω	*5KΩ	*25KΩ	* 0Ω
7	6AL6	* 0Ω	*22KΩ	* .1Ω	* 0Ω	* INF.	* 0Ω	* INF.
8	6AT6	2.4MEG	0Ω	.1Ω	0Ω	1.2MEG.	280KΩ	250KΩ

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

477-27

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.



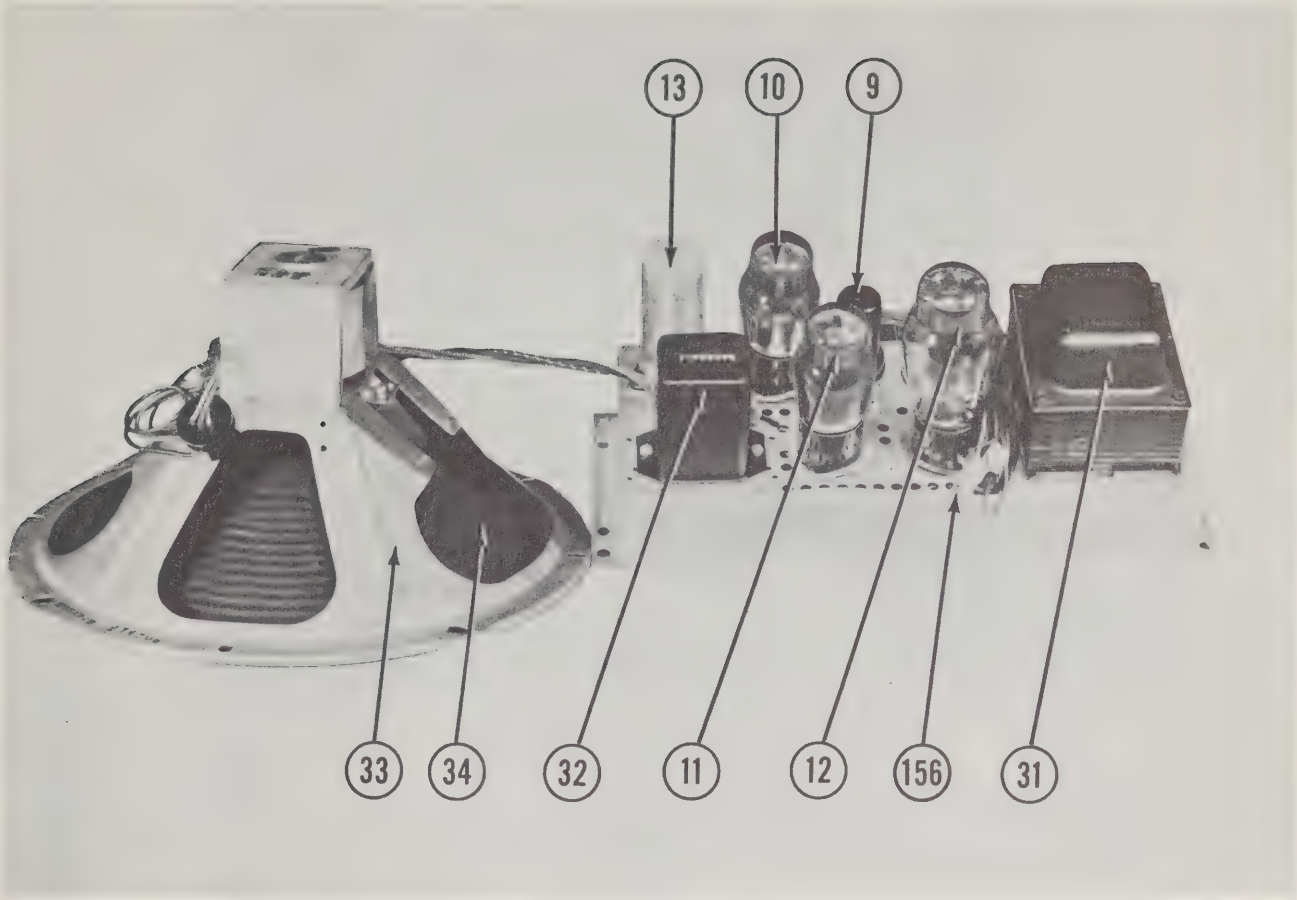
PIN NO.	6J5 VOLT.	6J5 RES.	6F6G VOLT.	6F6G RES.
1	0V.	0Ω	0V.	0Ω
2	0V.	0Ω	0V.	0Ω
3	200V.DC	28KΩ	376V.DC	6000Ω
4	52V.DC	21KΩ	260V.DC	4500Ω
5	43V.DC	75KΩ	-23V.DC	220KΩ
6	47V.DC	18KΩ	0V.	0Ω
7	6.5V.AC	.1Ω	6.5V.AC	.1Ω
8	52V.DC	21KΩ	0V.	0Ω

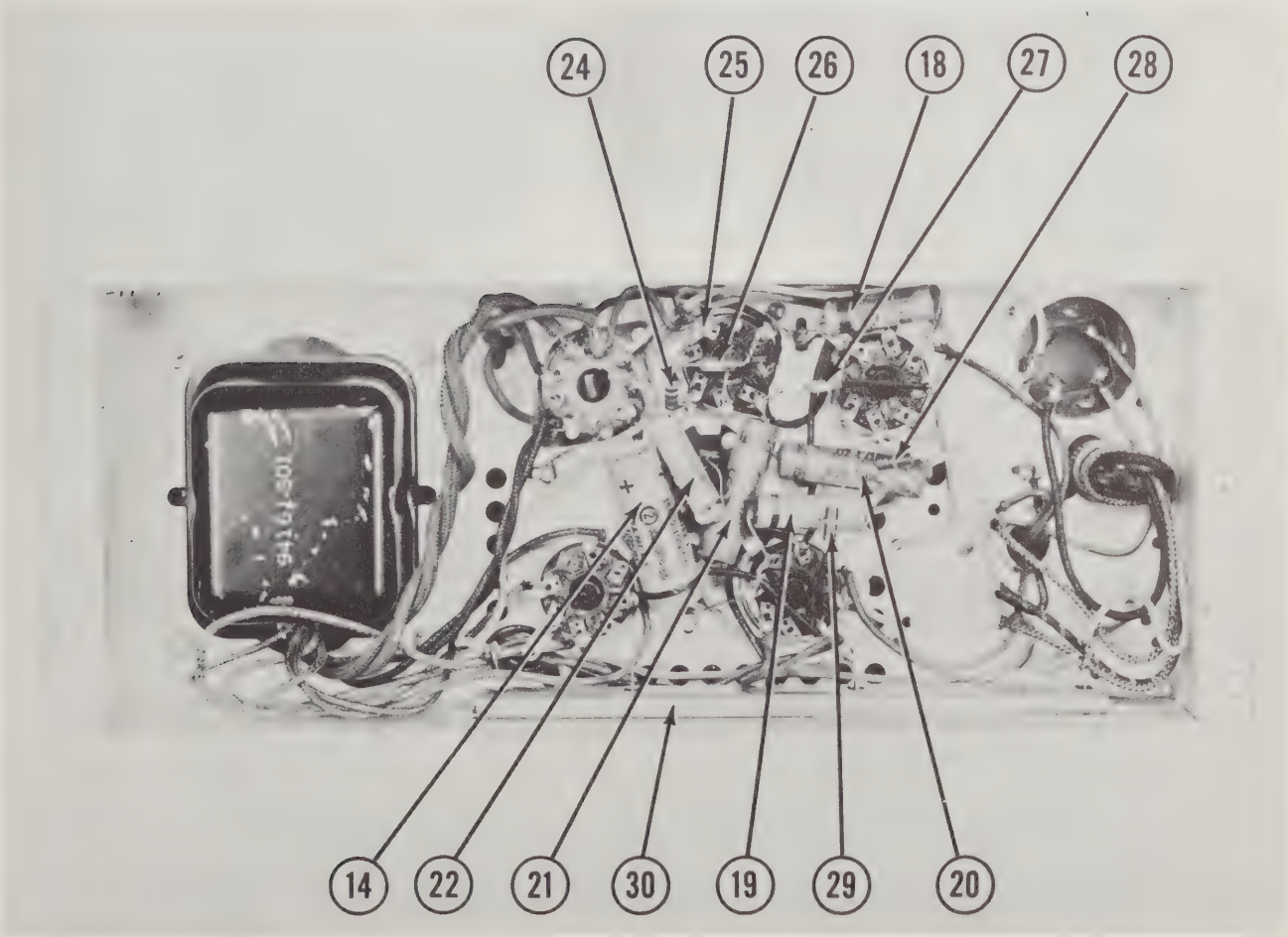
PIN NO.	6F6G VOLT.	6F6G RES.	5U4G VOLT.	5U4G RES.
1	0V.	0Ω	0V.	INF.
2	0V.	0Ω	420V.AC	6000Ω
3	376V.DC	6000Ω	0V.	INF.
4	260V.DC	4500Ω	360V.AC	235Ω
5	-23V.DC	200KΩ	0V.	INF.
6	0V.	INF.	360V.AC	225Ω
7	6.5V.AC	.1Ω	0V.	INF.
8	0V.	0Ω	420V.AC	6000Ω

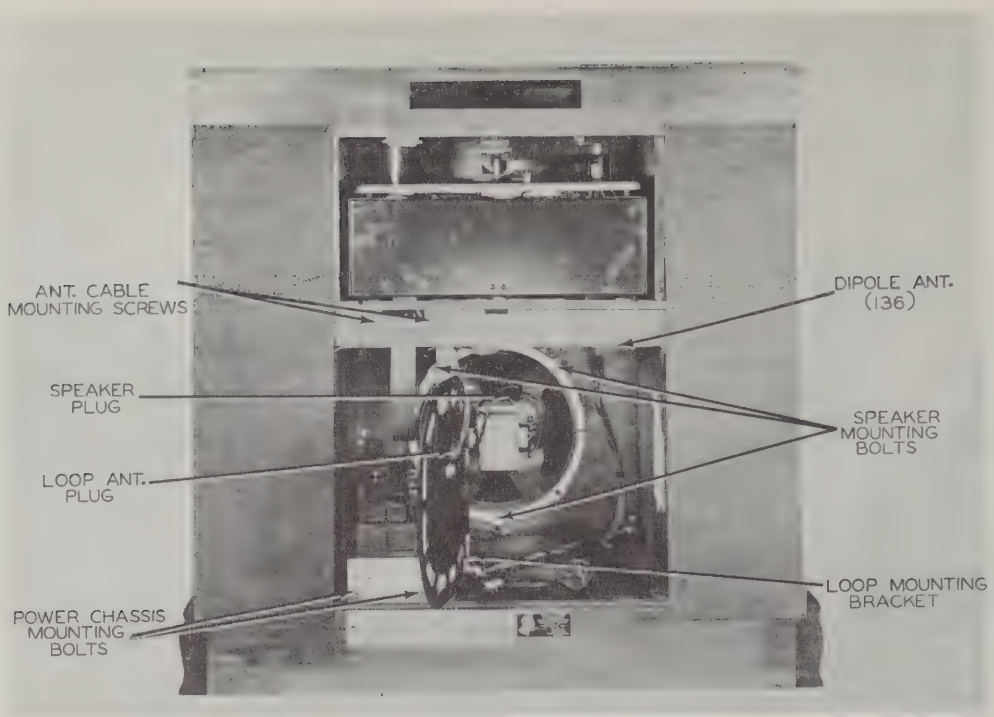
RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

VOLTAGE AND RESISTANCE TAKEN IN BROADCAST POSITION

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE


13
10
9
33
34
32
11
12
156
31


24
25
26
18
27
28
14
22
21
30
19
29
20



RADIO CHASSIS AND SPEAKER DISASSEMBLY

1. Remove plug from rotating loop antenna.
2. Remove cotter keys from loop mounting brackets.
3. Remove washers from loop mounting brackets.
4. Remove loop antenna and springs.
5. Remove cabinet pilot light from bracket under front of cabinet. Push light up through hole.
6. Remove speaker plug from speaker.
7. Remove AF plug from power and audio chassis.
8. Remove power plug from power and audio chassis.
9. Remove two screws holding AC line cord clamp. Remove clamp.
10. Remove four power and audio chassis mounting bolts. Remove chassis.
11. Remove three hex nuts holding speaker. Remove speaker.
12. Remove antenna plug from chassis.
13. Remove power plug from chassis.
14. Remove AF plug from chassis.
15. Remove phono pick-up plug from chassis.
16. Loosen screw holding ground strip from phono mounting to chassis and remove ground strip.
17. Remove "roll out" stop. (Access to nut can be made up through slot in bottom of carriage platform). Remove "roll out" carriage.
18. Remove eight Phillips head screws holding chassis. Remove chassis.
19. Loosen nut on bolt fastening power and AF cables to spring. Remove spring.
20. Remove three clamps holding power and AF cables. Remove cables.
21. Remove seven self-tapping screws holding bottom chassis shield. Remove shield.
22. Remove two wood screws and two bolts holding antenna cable and remove cable.

PUSHBUTTON ADJUSTMENTS

Make a list of stations desired to be set up. Any arrangement is possible but the preferable procedure is to adjust for stations in order of frequency, from low to high.

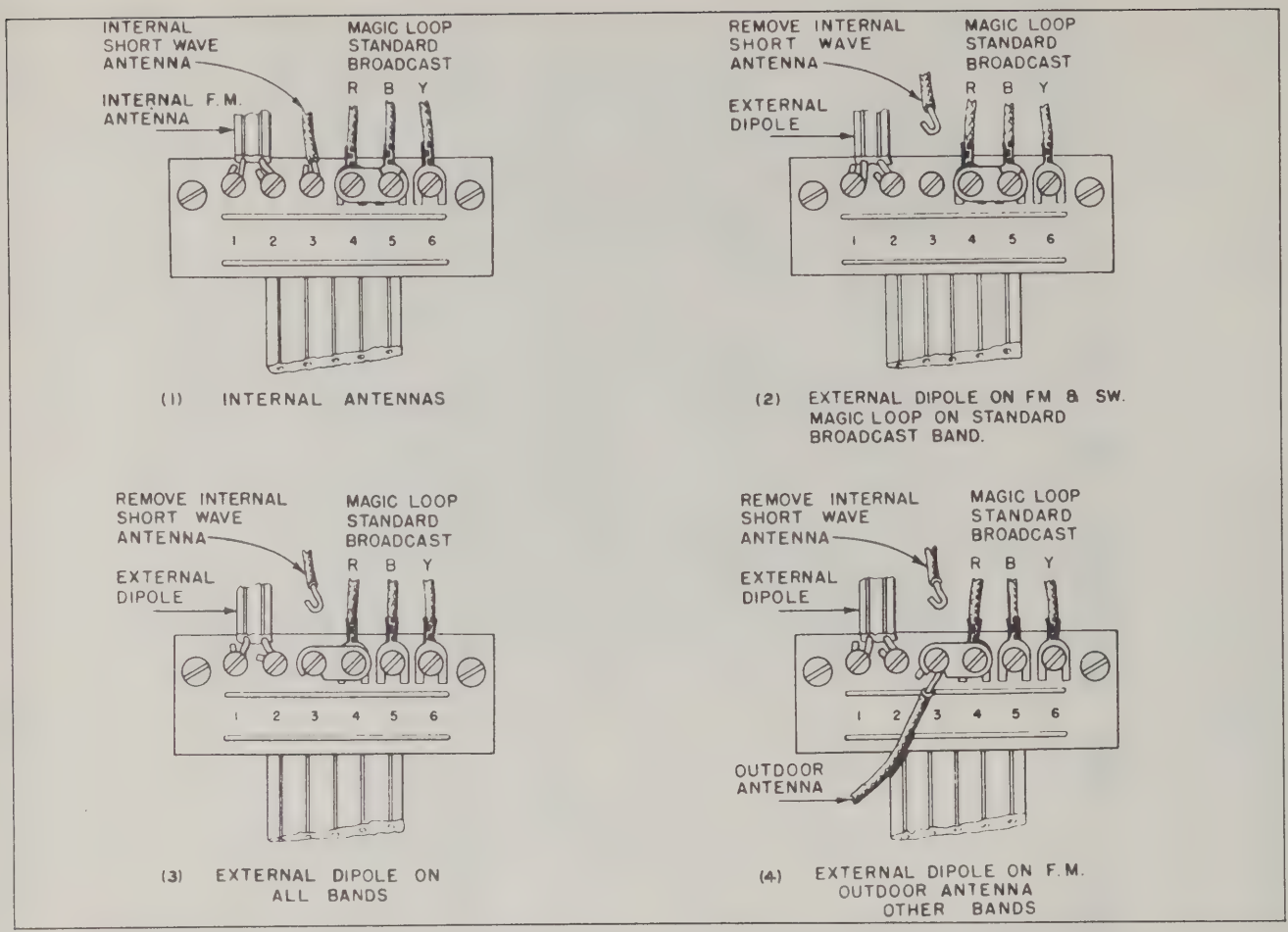
1. Turn receiver on and allow it to warm up for about 15 minutes.
2. Remove buttons simply by pulling on them.
3. Loosen the slotted head adjustment screws for each button rod.
4. Tune in accurately the first station on your list with the manual tuning control.
5. Push in first button rod completely.
6. Tighten slotted head adjustment screw for 1st button.
7. To check accuracy of setting, detune the station with the manual tuning control and retune with pushbutton. If tuning is off slightly repeat Steps 4 through 7.
8. Replace button.
9. To set up the remaining buttons follow the same procedure as outlined above.

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer, turn tuning capacitor fully closed and set the pointer at the last reference mark at the low frequency end of the broadcast band. Use a vacuum tube voltmeter as an output indicator when aligning the FM channels. Volume control at maximum position. Output of signal generator should be no higher than necessary to obtain output reading. Use an insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.01 MFD	High side to pin #1 (grid) 6AU6 (6). Low side to chassis.	10.7MC (30% mod. 400~ AM)	FM (Selector knob fully clockwise)	High freq. end of dial.	VTVM across capacitor 16.	A1	Connect 680Ω resistor between lugs D and E of ratio detector transformer (155). Adjust A1 for maximum reading.
.01 MFD	"	"	"	"	Connect 2 68000Ω resistors in series across capacitor 16. Connect common lead of VTVM to junction of these resistors. Connect DC probe to junction of capacitor 39 & resistor 116.	A2	Remove 680Ω from lugs D and E. Adjust A_2 for zero reading. Zero point is approached rapidly and continued adjustment causes polarity to reverse. A slow approach to the zero point is an indication of severe detuning and A2 should be turned in the opposite direction.
.01 MFD.	"	"	"	"	Output meter across voice coil.	A3	Adjust for minimum output. The zero DC balance and minimum AF output should occur at the same point. If they do not it may be necessary to adjust A2 and A3 simultaneously so that they will occur at the same point. Repeat Step 1 ommitting 680Ω resistor connection. Remove all connections.
.01 MFD.	High side to Pin #1 (grid) of 6BA6 mixer (2). Low side to chassis near soc- socket.	"	"	Low freq.end of dial.	VTVM across capacitor 16. (10V scale)	A4,A5, A6,A7, A8,A9.	Alternately load primary and secondary of each transformer with 680Ω while the opposite side of the same transformer is being adjusted. Adjust for maximum reading on VTVM.
.01 MFD	"	455KC (30% mod. 400~ AM)	C Band (Second position counter-clockwise	High freq. end of dial.	Output meter across voice coil.	A10,A11, A12,A13.	Adjust for maximum output. Do not distrub any 10.7 MC IF adjustments as it will detune the 455KC IF's.
150Ω in series with 25 MMF.	High side to terminal #3 on ant. cable. Low side to chassis.	15.5MC	"	15.5MC	"	A14	Adjust for maximum output. Turn signal generator to 16.41MC. The image should be heard. If it is not, reset signal generator to 15.5MC and open A14 to next peak and recheck for image.
"	"	"	"	Tune for maximum output.	"	A15,A16	Rock tuning capacitor and adjust for maximum output.
"	"	9.5MC	"	"	"	A17	Adjust for maximum output. Turn signal generator to 10.41MC. The image should be heard. If it is not, reset signal generator to 9.5MC and open A17 (counter-clockwise) to next peak and recheck for image.
"	"	9.5MC	"	Tune for maximum output.	"	A18,A19	Rock tuning capacitor and adjust for maximum output. Repeat last four steps.
200 MMF.	High side to red lead (link open) of loop. Low side to chassis.	1400KC	A Band (third position counter-clockwise)	1400KC	"	A20,A21, A22.	Adjust for maximum output in order given.
"	"	600KC	"	600KC	"	A23,A24, A25.	Adjust for maximum output in order given. Repeat last two steps.
Two 120Ω resistors	High side to FM ant. terminal #1 in series with 120Ω. Low side to FM ant. terminal #2 in series with 120Ω.	106MC	FM Band	106MC	VTVM across capacitor 16.	A26	Adjust for maximum reading. Two such points can be found. Use the one of greater capacity.
"	"	88MC	"	88MC	"	A27	Adjust for maximum reading. Repeat last twosteps
	Disconnect signal generator and turn off.		"	106MC	"	A28	Adjust for maximum reading. (Noise voltage).
	"		"	90MC	"	A29	Adjust for maximum reading. (noise voltage). Repeat last two steps.
Two 120Ω resistors.	High side to FM ant. terminal #1 in series with 120Ω. Low side to FM ant. terminal #2 in series with 120Ω.	106MC	"	Tune for maximum output.	"	A30	Adjust for maximum reading.
"	"	90MC	"	"	"	A31	Adjust for maximum reading. Repeat last two steps.

Reinstall receiver in cabinet and tune in weak station near 1400KC. Adjust A22 for maximum volume.


INTERNAL SHORT WAVE ANTENNA
INTERNAL F.M. ANTENNA
MAGIC LOOP STANDARD BROADCAST
R B Y
1 2 3 4 5 6
(1) INTERNAL ANTENNAS
REMOVE INTERNAL SHORT WAVE ANTENNA
EXTERNAL DIPOLE
MAGIC LOOP STANDARD BROADCAST
R B Y
1 2 3 4 5 6
(2) EXTERNAL DIPOLE ON FM & SW. MAGIC LOOP ON STANDARD BROADCAST BAND.
REMOVE INTERNAL SHORT WAVE ANTENNA
EXTERNAL DIPOLE
MAGIC LOOP STANDARD BROADCAST
R B Y
1 2 3 4 5 6
(3) EXTERNAL DIPOLE ON ALL BANDS
REMOVE INTERNAL SHORT WAVE ANTENNA
EXTERNAL DIPOLE
MAGIC LOOP STANDARD BROADCAST
R B Y
1 2 3 4 5 6
OUTDOOR ANTENNA
(4) EXTERNAL DIPOLE ON F.M. OUTDOOR ANTENNA OTHER BANDS

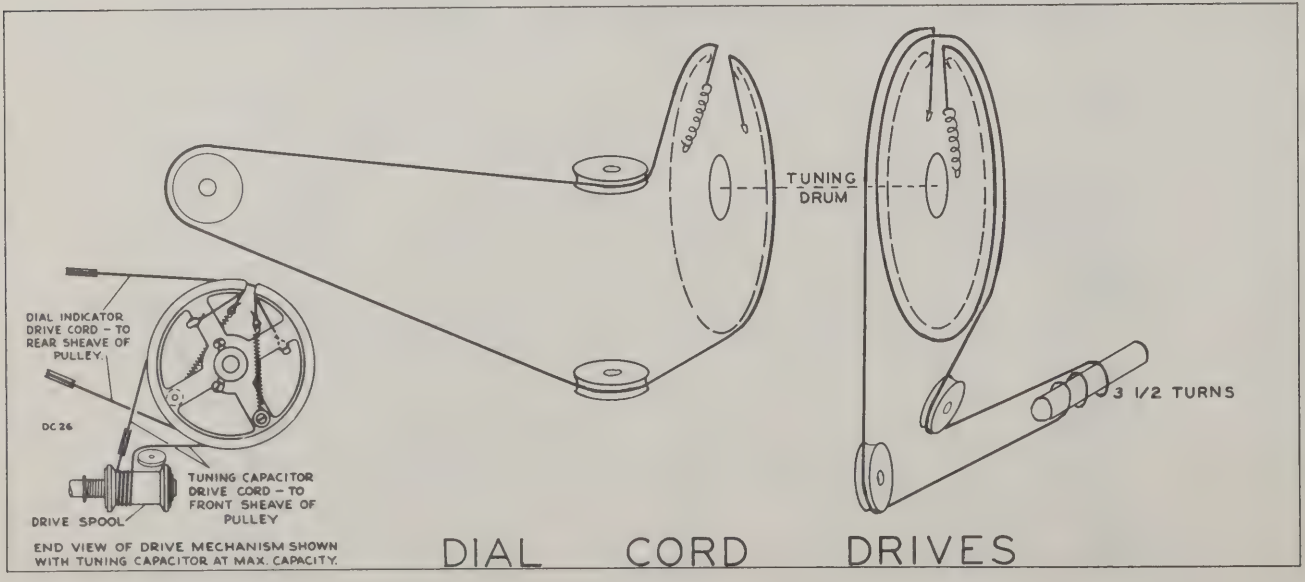
EXTERNAL ANTENNAS-If reception is not satisfactory on one or more of the three bands, using the built-in cabinet antennas, an external antenna may be used. The Magic Loop Antenna will usually provide sufficient pickup on the Standard Broadcast band, but if an external dipole is installed to improve reception on Frequency Modulation it may be used for Standard Broadcast and Short Wave as well. Connections are made to the antenna terminal board in the back of the cabinet. External antennas may be erected indoors or outdoors and should be oriented in direction for requirements of best reception. RCA Television Antenna, Stock No. 225 or 226, or the equivalent with 300-ohm transmission line is recommended for an external antenna.

Figure 1 shows the Antenna Terminal Board with connections for internal cabinet antennas.

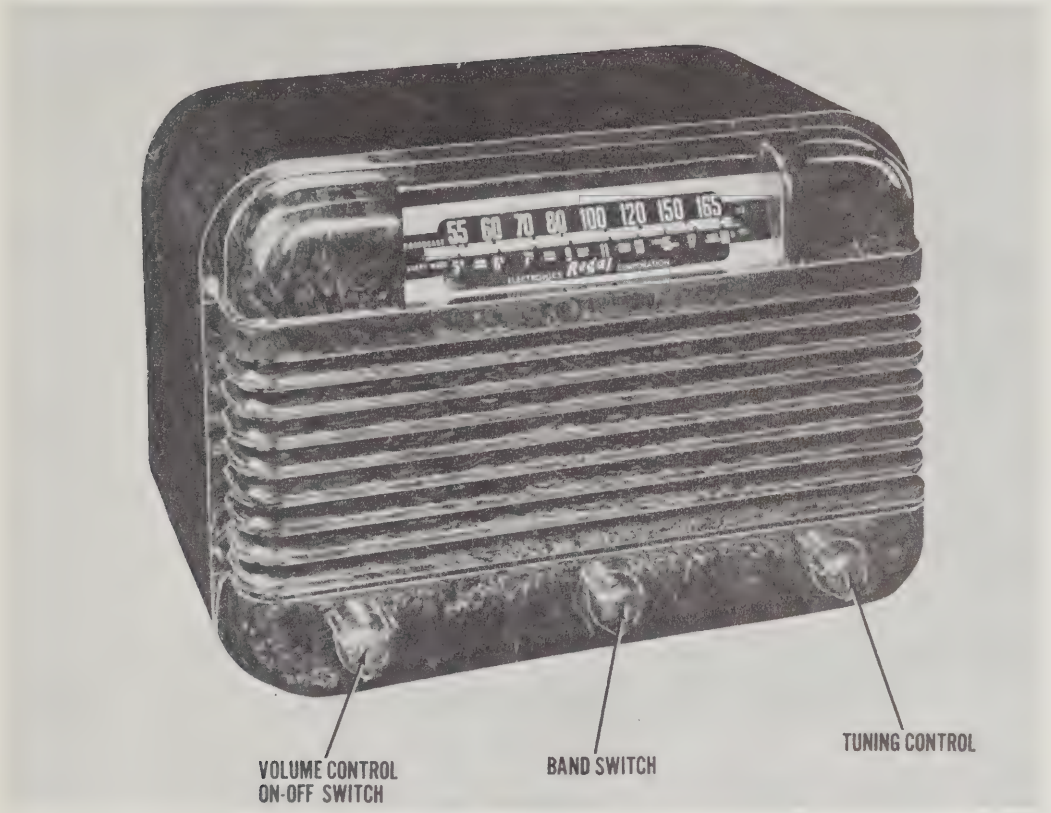
Figure 2 shows connections for the RCA Television Antenna replacing those for the internal FM antenna on terminals 1 and 2, and the internal SW antenna disconnected at terminal 3. The external dipole antenna is now the antenna for FM and SW bands.

Figure 3 shows the additional change for connecting the Standard Broadcast band to make use of the external RCA Television Antenna. The link across terminals 4 and 5 is changed to terminals 4 and 3. The external antenna is now effective on all bands. Tighten terminals and be sure that the red, black and yellow leads (R.B.Y.) to terminals 4, 5 and 6 are still in place and securely connected.

Figure 4 shows connections for a separate outdoor antenna on SW and SB reception, and the external dipole on FM. This outdoor antenna should consist of a wire 30 to 60 feet or so in length mounted in a convenient location as high as possible. Connect lead-in from the antenna to terminal 3 on the antenna terminal board. This outdoor antenna is effective on SB and SW bands. If this connection makes the SB signal too strong, causing overload and distortion, replace the link across terminals 4 and 5 as in figures 1 and 2. This outdoor antenna is now effective on SW only.


TUNING DRUM
3 1/2 TURNS
DIAL INDICATOR DRIVE CORD - TO REAR SHEAVE OF PULLEY.
DC 26
TUNING CAPACITOR DRIVE CORD - TO FRONT SHEAVE OF PULLEY
DRIVE SPOOL
END VIEW OF DRIVE MECHANISM SHOWN WITH TUNING CAPACITOR AT MAX. CAPACITY.
DIAL CORD DRIVES

REGAL
MODEL 1049



REGAL
MODEL 1049

REGAL MODEL 1049

TRADE NAME	Regal, Model 1049
MANUFACTURER	Regal Electronics Corp., 20 W. 20th St., New York, N.Y.
TYPE SET	AC-DC Operated 2-Band Superheterodyne with Self Contained Loop Antenna
TUBES (SIX)	Types, 12SH7 RF Amp., 12SA7GT/G Converter, 12SK7GT IF Amp., 12SQ7GT Det.-AVC-AF, 35L6GT Power Output, 35Z5GT Rectifier or Lock-In Type Tube Equivalents.
POWER SUPPLY	105-125 Volts AC-DC — **RATING** .250 Amp. @ 117 Volts AC
TUNING RANGE—BROADCAST	540-1650KC — **SHORT WAVE** 5.8-18.3MC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer turn tuning cap fully closed and set pointer 1-11/16" from left end of dial backplate. Use isolation transformer if available. If not, connect a capacitor in series with low side of signal generator and chassis. Volume control at maximum position. Output of signal generator should be no higher than necessary to obtain output reading. Use an insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD.	High side to front stator of tuning cap. Low side to chassis.	455KC	BC	Tuning cap. fully open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output If isolation transformer is not used, reduce dummy antenna to .001 MFD to reduce hum modulation.
.1 MFD.	"	"	"	"	"	A5	Adjust for minimum output
.1 MFD.	"	1650KC	"	"	"	A6	Adjust for maximum output
.1 MFD.	"	600KC	"	2-1/4" from left end of dial backplate.	"	A7	" " " "
200MMFD	High side to ext. ant. lead.	1500KC	"	"	"	A8	Rock tuning cap and adjust for maximum output.
400Ω	"	18.3MC	SW	Tuning cap. fully open.	"	A9	Adjust for maximum output
400Ω	"	17MC	"	Tune for maximum output.	"	A10	Rock tuning cap. and adjust for maximum output.

HOWARD W. SAMS & CO., INC. **Indianapolis Indiana**

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed." "Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1947 by Howard W. Sams & Co., Inc., Indianapolis, Indiana, U. S. A. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc."

PARTS LIST AND DESCRIPTIONS

REGAL MODEL 1C49

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: REGAL PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1A	RF Amp.	12SH7	12SH7	8BK	
B	" "	12SG7	12SG7	8BK	
C	" "	14A7	14A7	8V	
2A	Converter	12SA7GT	12SA7GT	8AD	
B	"	14Q7	14Q7	8AL	
3A	IF Amp.	12SK7GT	12SK7GT	8N	
B	" "	14A7	14A7	8V	
4A	Det.-AVC-AF	12SQ7GT	12SQ7GT	8Q	
B	" " "	14B6	14B6	8W	
5A	Power Output	35L6GT	35L6GT	7AC	
B	"	35A5	35A5	6AA	
6A	Rectifier	35Z5GT	35Z5GT	6AD	
B	"	35Y4	35Y4	5AL	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: REGAL PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
7A	50	150		PRSA150-50-50	EZ5515	2N521	DHN-2x50-150	TA-505	Filter - Red
B	50	150							" - Green
8	.05	600		684-05	DT6S5	TP415	S-6-05	TC-15	Line Filter
9	.01	400		484-01	DT4S1	TP421	S-4-01	TC-11	Output Plate Bypass
10	.01	400		484-01	DT4S1	TP421	S-4-01	TC-11	Audio Coupling
11	.006	600		684-006	DT6D6	TP409	S-6-006	TC-26	" "
12	.05	200		484-05	DT4S5	TP426	S-4-05	TC-15	AVC Filter
13	.05	200		484-05	DT4S5	TP426	S-4-05	TC-15	RF Bypass Pwr. Supp.
14	.05	200		484-05	DT4S5	TP426	S-4-05	TC-15	Conv. Screen Bypass
15	.005	200		484-005	DT6D5	TP408	S-6-005	TC-25	Fixed Padder SW
16	.05	200		484-05	DT4S5	TP426	S-4-05	TC-15	AVC Filter
17	.05	200		484-05	DT4S5	TP426	S-4-05	TC-15	Ant. Coupling
18	250	500		1468-00025	5W5T25	MC240	MO.5-325	1FM-325	Audio Plate Bypass
19	100	500		1468-0001	5W5T1	MC235	MO.5-31	1FM-31	Diode Filter
20	100	500		1468-0001	5W5T1	MC235	MO.5-31	1FM-31	" "
21	100	500		1468-0001	5W5T1	MC235	MO.5-31	1FM-31	RF Coupling
50	6								Fixed Trimmer BC*

*Not used in all models.

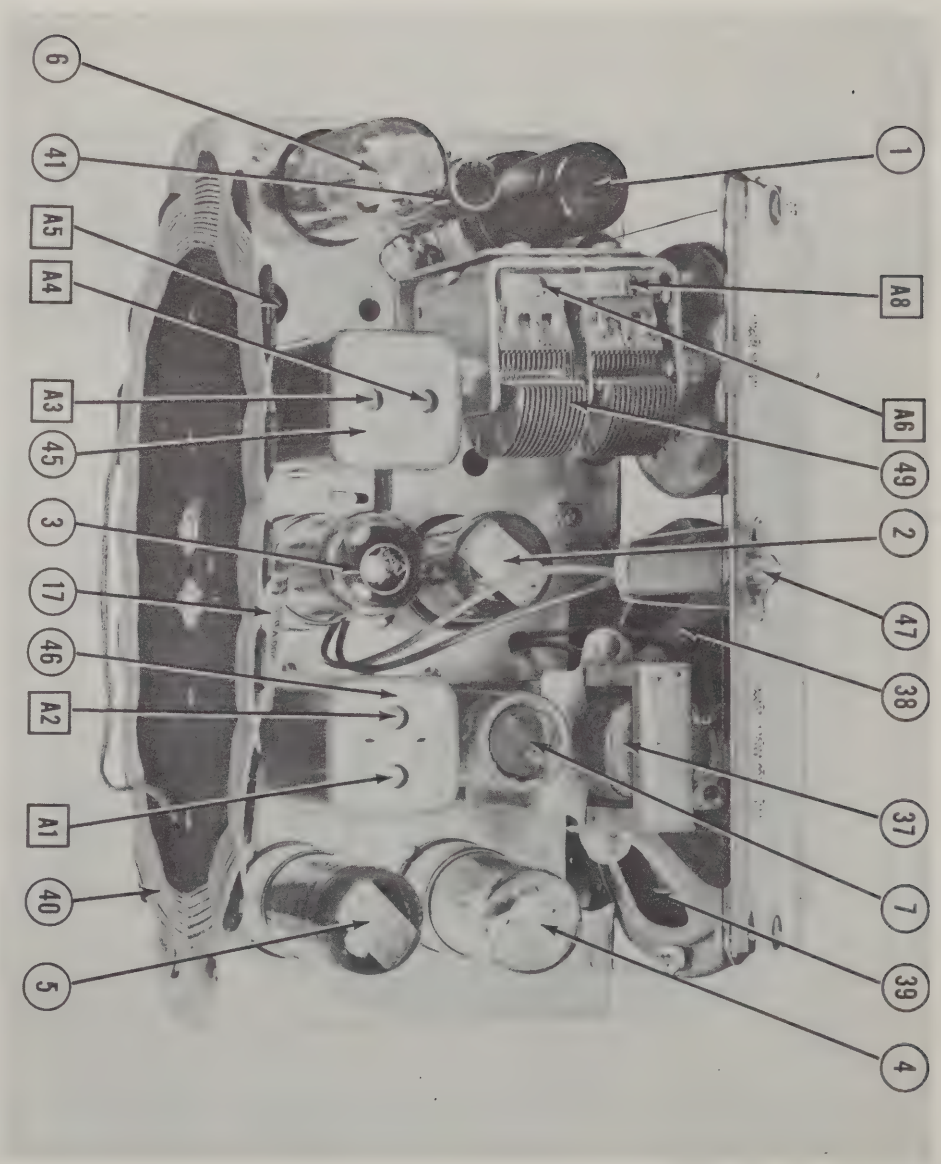
CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: REGAL PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
22A	500K	1	20-101	MR48	D13-133	M-60-Z	Vol. Cont.
B	Shaft		Not Req.	Not Req.	A	Not Req.	Attach to 22A per instructions
C	Switch		" "	M26	41	SW-A	" " " " "

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: REGAL PART No.	IRC PART No.	IDENTIFICATION CODES
23	250KΩ	½		BTS-270K	Red-Grn.-Yl. RF Grid SW.
24	4700Ω	½		BTS-4700	Yl.-Vi.-Red RF Plate Load
25	100KΩ	½		BTS-100K	Br.-Blk.-Yl. Converter Grid
26	25KΩ	½		BTS-27K	Red-Grn.-Or. Oscillator Grid
27	50Ω	½		BW-½-47	Grn.-Blk.-Blk. Parasitic Suppressor
28	1000Ω	½		BTS-1000	Br.-Blk.-Red Converter Screen Dropping
29	2 Meg.	½		BTS-2.2 Meg.	Red-Blk.-Grn. AVC Network
30	47KΩ	½		BTS-47K	Yl.-Vi.-Or. Diode RF Filter
31	10 Meg.	½		BTS-10 Meg.	Br.-Blk.-Blue AF Grid
32	250KΩ	½		BTS-270K	Red-Grn.-Yl. AF Plate Load
33	470KΩ	½		BTS-470K	Yl.-Vi.-Yl. Output Grid
34	150Ω	½		BW-½-150	Br.-Grn.-Br. Output Cathode
35	1000Ω	2		BT-2-1000	Br.-Blk.-Red Filter
36	15Ω	½		BW-½-15	Br.-Grn.-Blk. Rectifier Ballast

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		REGAL PART No.	STANCOR PART No.	THORDAR'N PART No.		
	PRI.	SEC.	PRI.	SEC.					
37	32Ω CΩ	2.8Ω	230Ω	.8Ω	Part of 110-101	A-3876	T22S46		

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			REGAL PART No.	JENSEN PART No.		
	FIELD	VC IMP.		ST-105		
38	PM	2.8Ω	110-101	Mod. P5-X		
	CONE DIA.	VC DIA.				
39	4-3/4"	1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT			

R F COILS

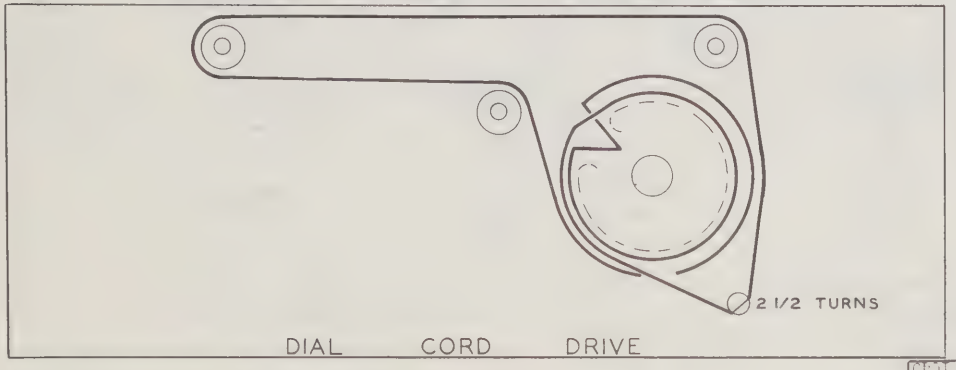
ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	REGAL PART No.	MEISSNER PART No.	
40	Loop Ant.	0Ω	1.2Ω	30-107		
41	SW Ant.Coil	.3Ω	0Ω	30-111	14-1044	
42	BC Osc.Coil		3Ω	40-103	14-1040	42 & 43 wound on same form
43	SW Osc.Coil		0Ω	40-105	14-1046	
44	Wave Trap		51Ω	30-106		
45	Input IF	23Ω	23Ω	30-104	16-6658	
46	Output IF	23Ω	23Ω	30-105	16-6660	

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					REGAL PART No.		
47	Bayonet	6-8	0.15	Brown			Type 47

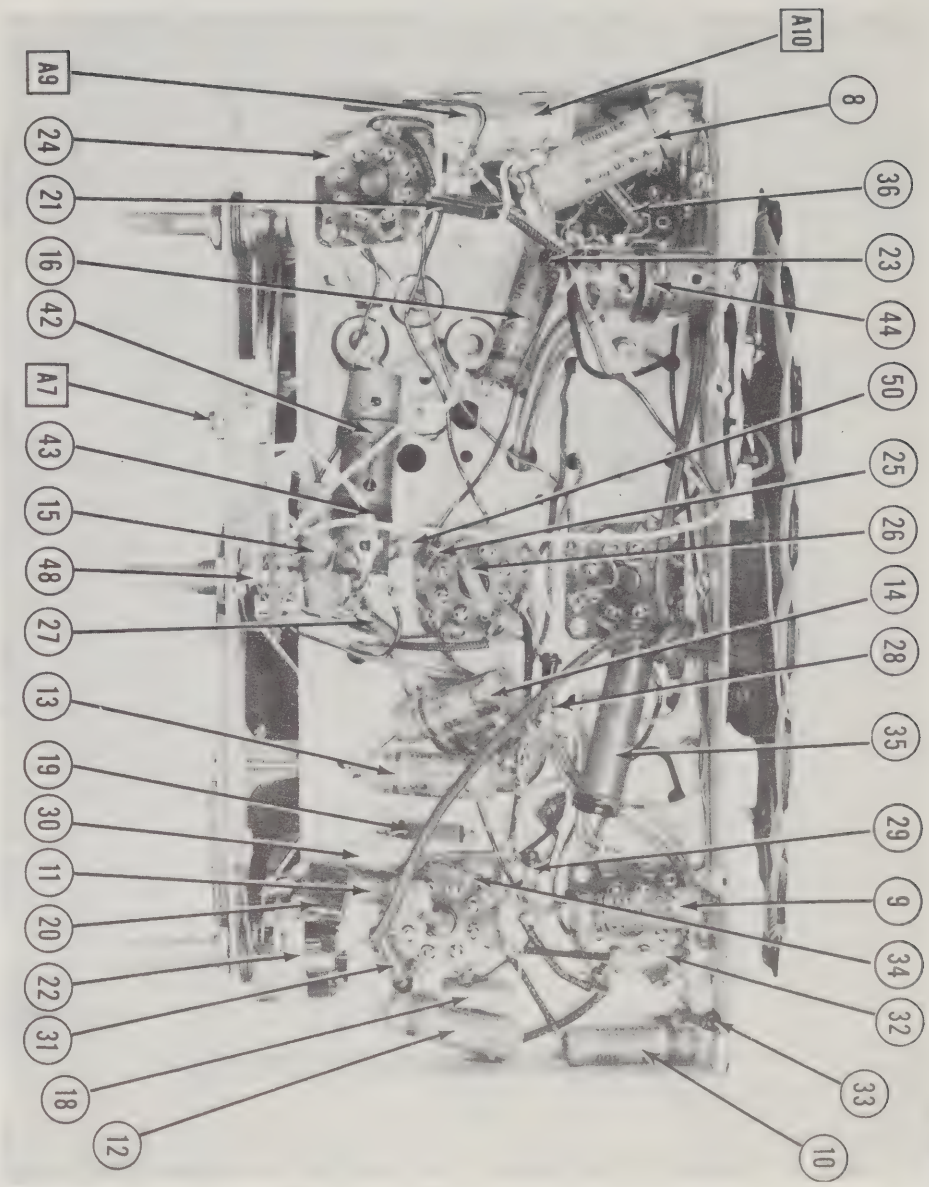
MISCELLANEOUS

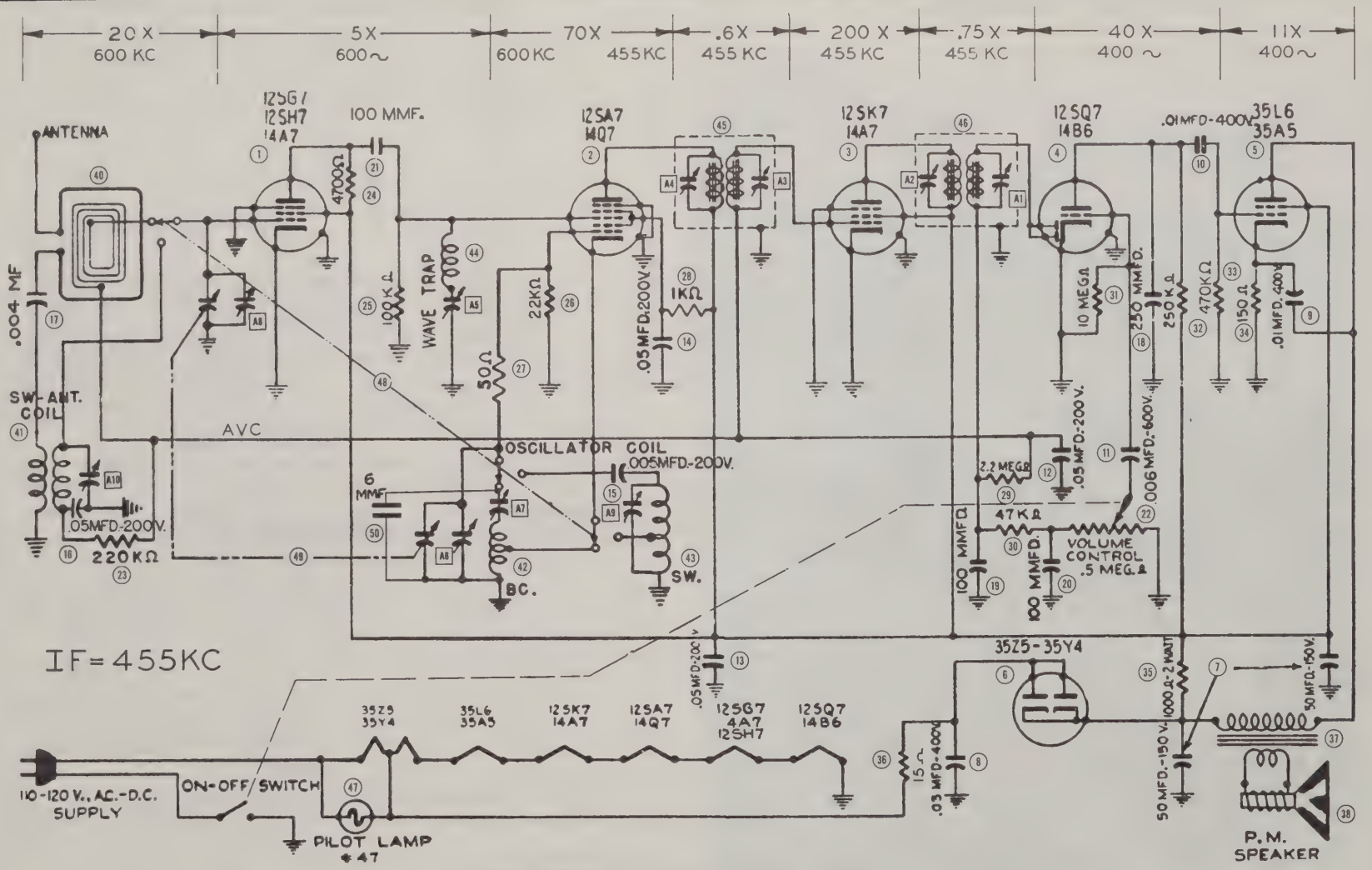
ITEM No.	PART NAME	REGAL PART No.	NOTES
48	Bandswitch	95-102	
49	2 Gang Var. Cap.	40-104	(20-472MMF) each section.
A6	Wave Trap Cap.	30-106	
A7	Trimmer Cap.	40-103	Osc. Padder
A8	Trimmer Cap.	40-105	SW Osc. Trimmer
A9	Trimmer Cap.	40-105	SW Ant. Trimmer



DIAL CORD DRIVE

CHASSIS—BOTTOM VIEW





VOLTAGE AND RESISTANCE TAKEN IN BROADCAST POSITION

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SH7	0V.	27V.AC	0V.	-3V.DC	0V.	87V.DC	38V.AC	68V.DC
2	12SA7GTG	0V.	27V.AC	87V.DC	80V.DC	-3.8V.DC	0V.	14V.AC	0V.
3	12SK7GT	0V.	38V.AC	0V.	-3V.DC	0V.	87V.DC	50V.AC	87V.DC
4	12SQ7GT	0V.	-6V.DC	0V.	-45V.DC	-45V.DC	68V.DC	14V.AC	0V.
5	35L6GT	115V.DC	85V.AC	107V.DC	87V.DC	0V.	-3V.DC	50V.AC	52V.DC
6	35Z5GT	0V.	117V.AC	113V.AC	-1V.DC	110V.AC	0V.	85V.AC	115V.DC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SH7	0Ω	26Ω	0Ω	3MEG.	0Ω	39KΩ	38Ω	44KΩ
2	12SA7GTG	0Ω	26Ω	39KΩ	39KΩ	22KΩ	.5Ω	14Ω	90KΩ
3	12SK7GT	0Ω	38Ω	0Ω	3 MEG.	0Ω	39KΩ	45Ω	39KΩ
4	12SQ7GT	0Ω	10 MEG.	0Ω	480KΩ	480KΩ	300KΩ	14Ω	0Ω
5	35L6GT	39KΩ	77Ω	39KΩ	39KΩ	580KΩ	3 MEG.	45Ω	130Ω
6	35Z5GT	0Ω	100Ω	98Ω	3 MEG.	110Ω	INF.	77Ω	39KΩ

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

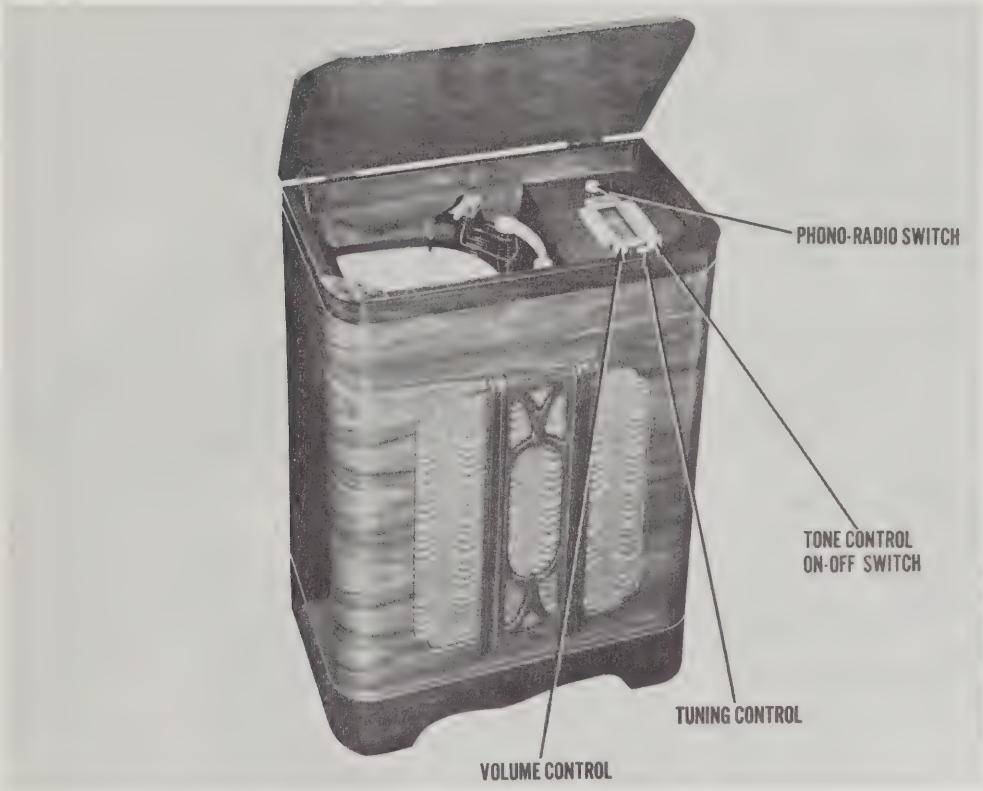
RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

477-28

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

SILVERTONE
MODEL 7100 (CH. 101.811)



SILVERTONE
MODEL 7100 (CH. 101.811)

SILVERTONE MODEL 7100

TRADE NAME	Silvertone, Model 7100 (Ch. 101.811)
SUPPLIER	Sears, Roebuck & Co., 925 S. Homan St., Chicago, Ill.
TYPE SET	AC Operated Phono-Radio Combination Superheterodyne - Loop Antenna
TUBES (SIX)	Types, 7B7 RF Amp., 14Q7 Converter, 7B7 IF Amp., 7C6 Det.-AVC-AF, 50A5 Power Output, 35Y4 Rectifier.
POWER SUPPLY	105-125 Volts AC
TUNING RANGE—BROADCAST	530-1650KC RATING .240 Amp. @ 117 Volts AC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer, turn tuning capacitor fully closed and set pointer to last reference mark at low frequency end of dial. Use isolation transformer if available. If not, connect a capacitor in series with low side of signal generator and B-. Loop should be maintained in same relative position to chassis as when receiver is in cabinet. Volume control at maximum position. Output of signal generator should be no higher than necessary to obtain output reading. Use an insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.001 MFD.	High side to Pin 6 (grid) of 14Q7. Low side to B-.	455KC	Tuning cap. closed.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If isolation transformer is not used, reduce dummy antenna to .001MFD to reduce hum modulation.
200MMFD	High side to ext. ant. lug. Low side to chassis.	1500KC	1500KC	"	A5	Adjust for maximum output.
200MMFD	"	1500KC	Tune for maximum output.	"	A6,A7.	" " " "

DISASSEMBLY INSTRUCTIONS

1. Remove four push-on type control knobs.
2. Remove phono-motor plug from chassis.
3. Remove phono-pickup plug from chassis.
4. Remove speaker plug from speaker.
5. Remove leads to loop antenna.
6. Remove four chassis mounting bolts. Remove chassis.
7. Remove four screws holding speaker. Remove speaker.
8. Remove staples holding loop antenna. Remove loop antenna.

HOWARD W. SAMS & CO., INC. Indianapolis Indiana

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed."
"Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1947 by Howard W. Sams & Co., Inc., Indianapolis, Indiana, U. S. A. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc."

PARTS LIST AND DESCRIPTIONS

SILVERTONE MODEL 710 (Ch. 1 1.-11)

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: SILVERTONE PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	RF Amp.	7B7	7B7	8V	
2	Converter	14Q7	14Q7	8AL	
3	IF Amp.	7B7	7B7	8V	
4	Det.-AVC-AF	7C6	7C6	8W	
5	Power Output	50A5	50A5	6AA	
6	Rectifier	35Y4	35Y4	5AL	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: SILVERTONE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
7A	40	150	R60416	AF88D4A	UP6CJ44	FP357	DY-305	EL-352	■ Filter
B	40	150							▲ "
C	20	25							Cath. Bypass
8	.05	600		684-05	DT6S5	TP415	S-6-05	TC-15	Line Filter
9	.02	600		684-02	DT6S2	TP412	S-6-02	TC-12	Output Plate Bypass
10	.05	600		684-05	DT6S5	TP415	S-6-05	TC-15	Tone Compensation
11	.005	600		684-005	DT6D5	TP408	S-6-005	TC-25	Audio Coupling
12	.1	200	R60676	484-1	DT4P1	TP428	S-4-1	TC-1	Audio Plate Decoup.
13	.1	200		484-1	DT4P1	TP428	S-4-1	TC-1	Line Isolation
14	.005	600		684-005	DT6D5	TP408	S-6-005	TC-25	Audio Coupling
15	.01	600		684-01	DT6S1	TP410	S-6-01	TC-11	Tone Compensation
16	.005	600		684-005	DT6D5	TP408	S-6-005	TC-25	Audio Coupling
17	.05	200		484-05	DT4S5	TP426	S-4-05	TC-15	Phono Isolation
18	.05	200		484-05	DT4S5	TP426	S-4-05	TC-15	RF Bypass Pwr. Supp.
19	.05	200		484-05	DT4S5	TP426	S-4-05	TC-15	AVC Filter
20	.01	400		484-01	DT4S1	TP421	S-4-01	TC-11	Fixed Padder
21	.001	600		684-001	DT6D1	TP404	S-6-001	TC-21	Ext. Ant. Coupling
22	100	500		1468-0001	5W5T1	MC235	MO.5-31	1FM-31	Audio Plate Bypass
23	100	500		1468-0001	5W5T1	MC235	MO.5-31	1FM-31	Osc. Grid Capacitor
24	100	500		1468-0001	5W5T1	MC235	MO.5-31	1FM-31	RF Coupling

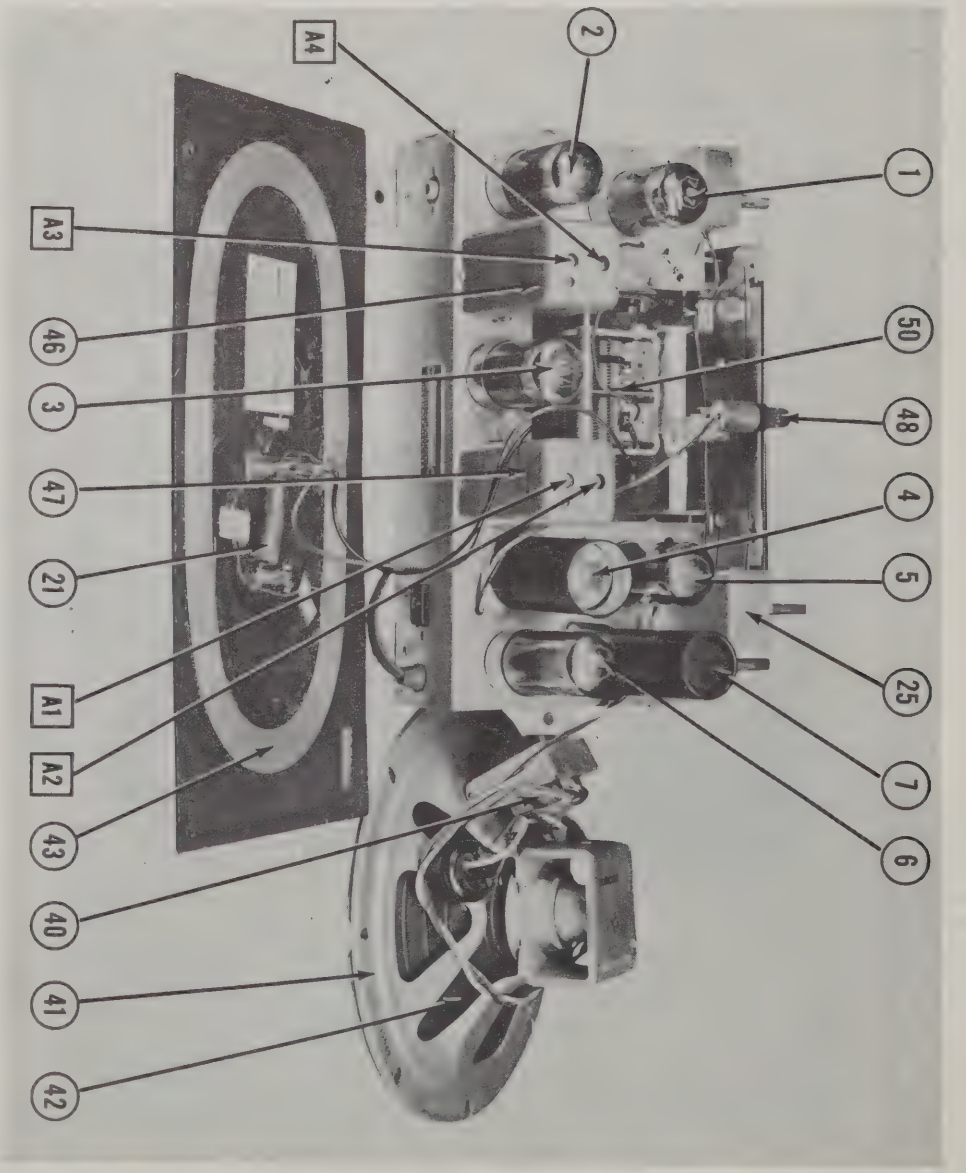
CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: SILVERTONE PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
25A	2 Meg.	1	R60505	MRT454	D13-139X	T-120	Volume Control
B	Shaft		Not Req.	Not Req.	A	Not Req.	Attach to 25A per instructions
26A	100KΩ	1	R60516	MR39	D13-128	M-51-Z	Tone Control
B	Shaft		Not Req.	Not Req.	A	Not Req.	Attach to 26A per instructions
C	Switch		" "	M26	41	SW-A	" " " " "

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: SILVERTONE PART No.	IRC PART No.	IDENTIFICATION CODES
27	1 Meg.	1/3		BTS-1 Meg.	Br.-Blk.-Grn. RF Grid
28	22KΩ	1/3		BTS-22K	Red-Red-Or. Oscillator Grid
29	470Ω	1/3		BTS-470	Yl.-Vi.-Br. Parasitic Suppressor
30	2.2 Meg.	1/3		BTS-2.2 Meg.	Red-Red-Grn. AVC Network
31	330KΩ	1/3		BTS-330K	Or.-Or.-Yl. Phono Shunt
32	47KΩ	1/3		BTS-47K	Yl.-Vi.-Or. Tone Compensation
33	4.7 Meg.	1/3		BTS-4.7 Meg.	Yl.-Vi.-Grn. AF Grid
34	2.2 Meg.	1/3		BTS-2.2 Meg.	Red-Red-Grn. AF Plate Load
35	470KΩ	1/3		BTS-470K	Yl.-Vi.-Yl. AF Plate Decoupling
36	470KΩ	1/3		BTS-470K	Yl.-Vi.-Yl. Output Grid
37	150Ω	1/3		BW-½-150	Br.-Grn.-Br. Output Cathode
38	25Ω	1	R40232	BW-1-27	Red-Grn.-Blk. Surge Limiter
39	1200Ω	1		BTA-1200	Br.-Red-Red Filter

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		SILVERTONE PART No.	STANCOR PART No.	THORDAR'N PART No.		
	PRI.	SEC.	PRI.	SEC.					
40	2400Ω	3.5Ω	320Ω tapped @ 12Ω	.9Ω	R61038	A-3349*			*Add extra filter to reduce hum level.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			SILVERTONE PART No.	JENSEN PART No.		
41	FIELD PM	VC IMP. 3.5Ω	R61032	ST-115 Mod. P8-V		
42	CONE DIA. 7-3/8"	VC DIA. 7/8"	R61037			

R F COILS

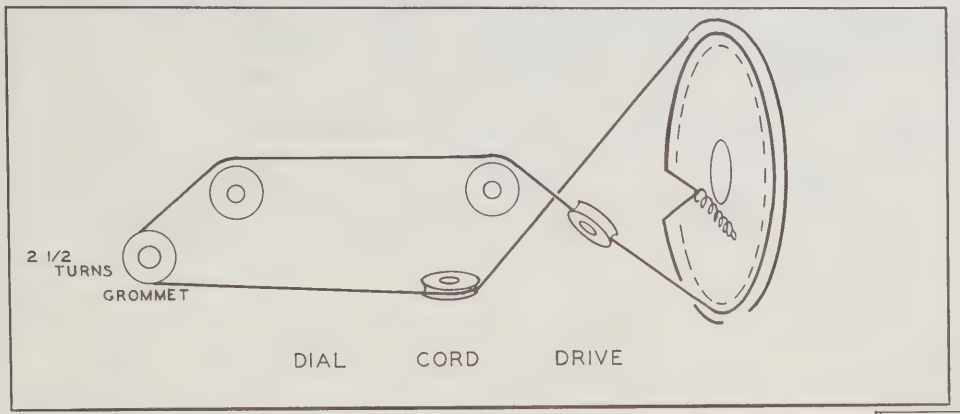
ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	SILVERTONE PART No.	MEISSNER PART No.	
43	Loop Ant.	.3Ω	2Ω	R60682		
44	RF Coil	2Ω	15Ω	R60465		
45	Osc. Coil		4.1Ω	R60448		
46	Input IF	10.5Ω	11Ω	R60417	16-6658	
47	Output IF	14Ω		R60418	16-6670	

DIAL LIGHT

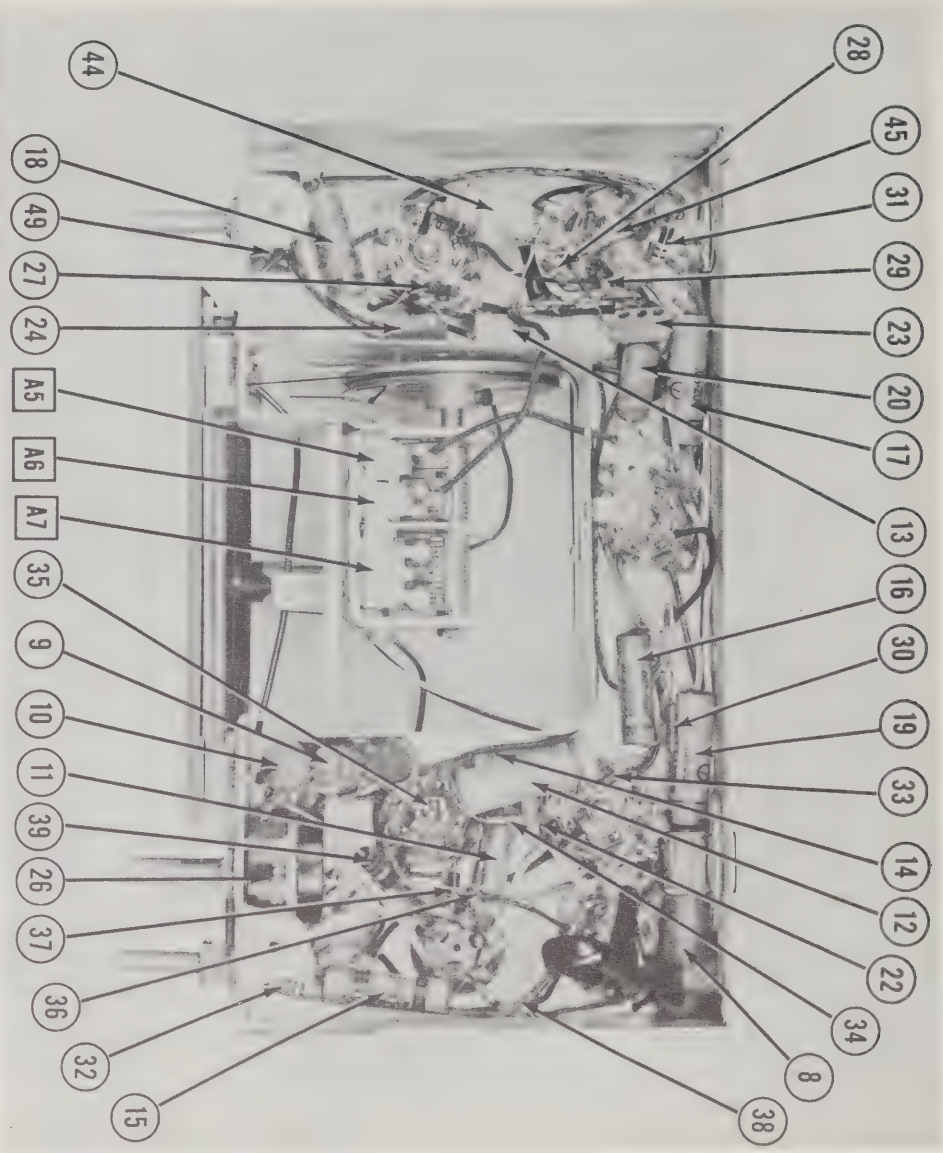
ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					SILVERTONE PART No.		
48	Bayonet	6-8	0.15	Brown			Type 47

MISCELLANEOUS

ITEM No.	PART NAME	SILVERTONE PART No.	NOTES
49	Radio-Phono Sw.	R60517	
50	3 Gang Var. Cap.	R60413	17-507MMF, 13-250MMF, 13-88MMF
	Dial	R60506	
	Pointer	R60510	
	Phono Motor	R52904	
	Turntable	R52891	
	XTAL Cartridge	R52826	

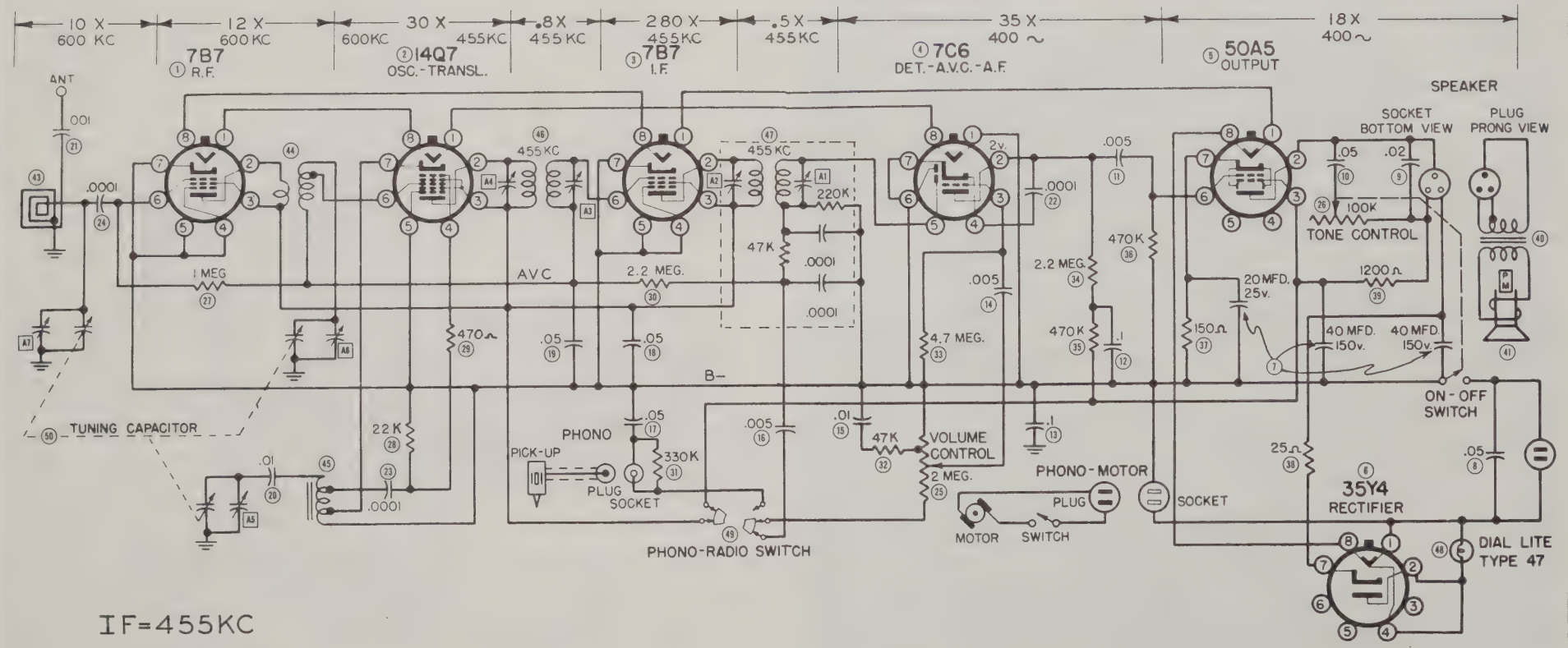


CHASSIS—BOTTOM VIEW



SILVERTONE MODEL 7100 (Ch. 101.811)

SILVERTONE MODEL 7100 (Ch. 101.811)



IF=455KC

VOLTAGE AND RESISTANCE TAKEN IN BROADCAST POSITION

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	7B7	20V.AC	85V.DC	85V.DC	0V.	0V.	-.3V.DC	0V.	26V.AC
2	14Q7	6.8V.AC	85V.DC	85V.DC	-.4V.DC	0V.	-.4V.DC	0V.	20V.AC
3	7B7	33V.AC	85V.DC	85V.DC	0V.	0V.	-3.2V.DC	0V.	26V.AC
4	7C6	0V.	22V.DC	-.75V.DC	0V.	-.3V.DC	0V.	0V.	6.8V.AC
5	50A5	33V.AC	107V.DC	85V.DC	73V.DC	0V.	0V.	5.4V.DC	86V.AC
6	35Y4	117V.AC	113V.AC	0V.	113V.AC	0V.	0V.	117V.DC	86V.AC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	7B7	19Ω	120KΩ	120KΩ	0Ω	0Ω	3MEG.	0Ω	25Ω
2	14Q7	7Ω	120KΩ	120KΩ	20KΩ	0Ω	2.3MEG.	.1Ω	19Ω
3	7B7	30Ω	120KΩ	120KΩ	0Ω	0Ω	2.3MEG.	0Ω	25Ω
4	7C6	0Ω	2.9MEG.	4 MEG.	0Ω	200KΩ	0Ω	0Ω	7Ω
5	50A5	30Ω	120KΩ	120KΩ	590KΩ	1.8MEG.	420KΩ	130Ω	75Ω
6	35Y4	100Ω	97Ω	INF.	97Ω	0Ω	INF.	120KΩ	75Ω

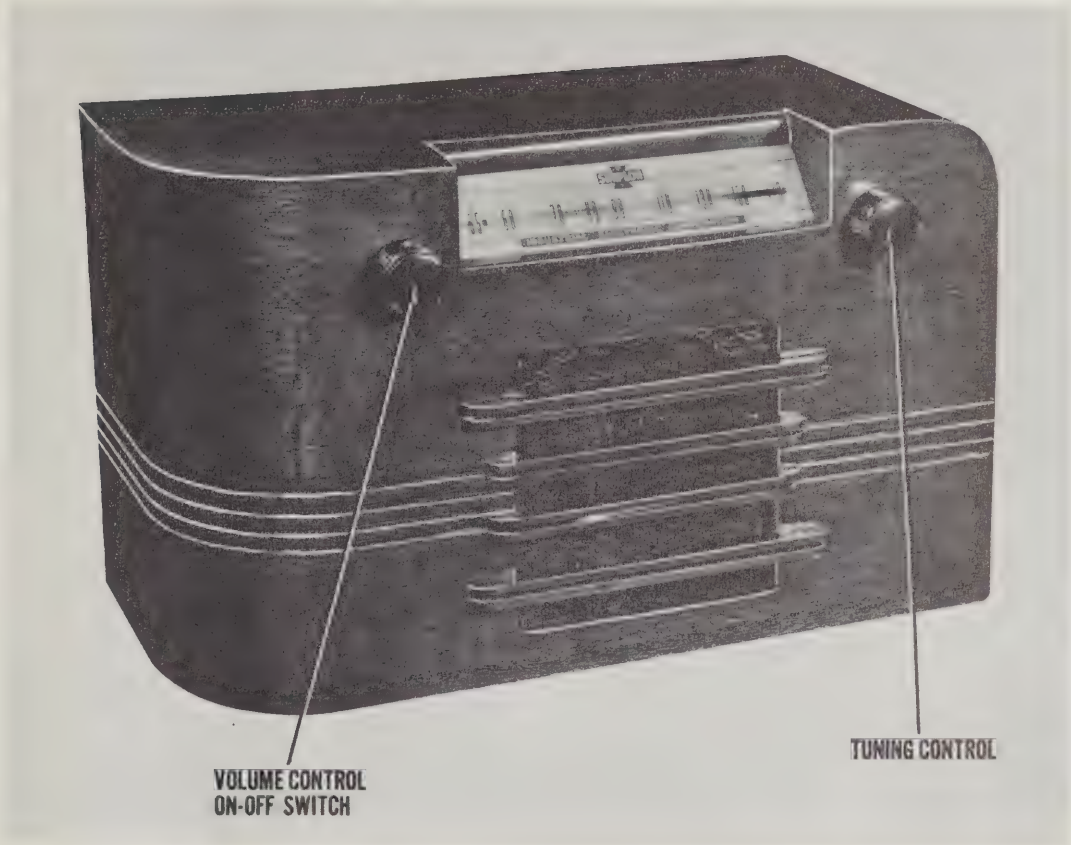
THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

477-29

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of + 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.



SIMPLON
MODEL WVV 2

SIMPLON
MODEL WVV 2

SIMPLON MODEL WVV2

TRADE NAME	Simplon, Model WVV2
MANUFACTURER	Industrial Electronic Corp., 505 Court St., Brooklyn, N.Y.
TYPE SET	AC-DC Operated Superheterodyne Receiver-Self Contained Loop Antenna
TUBES (FIVE)	Types, 14Q7 or 12BE6 Converter, 14A7 or 12BA6 IF Amp., 14B6 or 12AT6 Det.-AVC-AF, 50A5 or 50B5 Power Output, 35Y4 or 35W4 Rectifier.
POWER SUPPLY	110-120 Volts AC-DC
TUNING RANGE—BROADCAST	540-1725KC RATING .240 Amp. @ 117 Volts AC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use isolation transformer if available. If not, connect a capacitor in series with low side of signal generator and chassis. Volume control at maximum position, output of signal generator should be no higher than necessary to obtain output reading. Use an insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD.	High side to rear stator of tuning cap. Low side to chassis.	455KC	Tuning cap. fully open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If isolation transformer is not used, reduce dummy antenna to .001 MFD. to reduce hum modulation.
200MMFD.	High side to ext. ant. lead. Low side to chassis.	1725KC	"	"	A5	Adjust for maximum output.
200MMFD.	"	1400KC	Tune for maximum output.	"	A6	" " " "

HOWARD W. SAMS & CO., INC. **Indianapolis , Indiana**

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed." "Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1947 by Howard W. Sams & Co., Inc., Indianapolis, Indiana, U. S. A. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc."

PARTS LIST AND DESCRIPTIONS

SIMPLON MODEL WVV2

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: SIMPLON PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1A	Converter	14Q7	14Q7	8AL	
B	"	12BE6	12BE6	7CH	
2A	IF Amp.	14A7	14A7	8V	
B	" "	12BA6	12BA6	7CC	
3A	Det.-AVC-AF	14B6	14B6	8W	
B	" " "	12AT6	12AT6	7BT	
4A	Power Output	50A5	50A5	6AA	
B	" "	50B5	50B5	7BZ	
5A	Rectifier	35Y4	35Y4	5AL	
B	"	35W4	35W4	5BQ	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: SIMPLON PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
6A	40	150	C0127	PRSA150-40-20	EZ42215	TN129	DSB-403020-150	TA-240	Filter - Red
B	20	150							" - Blue
C	20	150		PRS150-20				UT-201	" - "
7	.02	600	C0128	684-02	DT6S2	TP412	S-6-02	TC-12	Line Filter
8	.02	600	C0128	684-02	DT6S2	TP412	S-6-02	TC-12	Output Plate Bypass*
9	.02	600	C0128	684-02	DT6S2	TP412	S-6-02	TC-12	Audio Coupling
10	.002	400	C0126	484-002	DT6D2	TP405	S-6-002	TC-22	" "
11	.1	400	C0129	484-.1	DT4P1	TP428	S-4-1	TC-1	AVC Filter
12	.002	400	C0126	484-002	DT6D2	TP405	S-6-002	TC-22	Ext. Ant. Isolation
13	100	500	C0124	1468-0001	5W5T1	MC235	MO.5-31	1FM-31	Output Grid Filter
14	200	500		1468-0002	5W5T2	MC237	MO.5-32	1FM-32	IF Bypass Vol. Cont.
15	50	500	C0123	1468-00005	5W5Q5	MC225	MO.5-45	1FM-45	Osc. Grid Capacitor

*May be .002 in some models.

CONTROLS

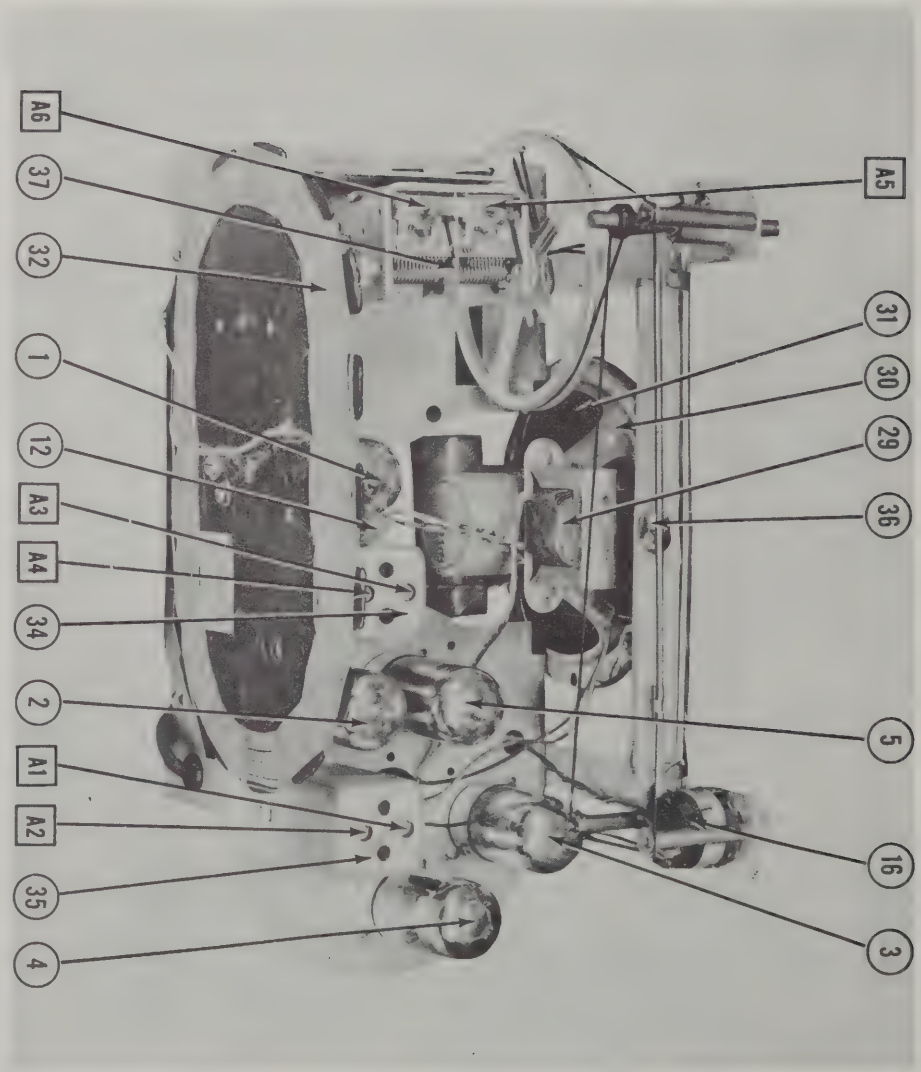
ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: SIMPLON PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
16A	500KΩ	1	PT109-W	MR48	D13-133	M-60-Z	Volume Control
B	Shaft		Not Req.	Not Req.	A	Not Req.	Attach to 16A per instructions
C	Switch		" "	M26	41	SW-A	" " " " "

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: SIMPLON PART No.	IRC PART No.	IDENTIFICATION CODES
17	20KΩ	½	RE133	BTS-22K	Red-Blk.-Or. Oscillator Grid
18	56Ω	½	RE174	BW-½-56	Grn.-Blue-Blk. IF Cathode-See Note 1
19	2.2 Meg.	½	RE135	BTS-2.2 Meg.	Red-Red-Grn. AVC Network
20	15 Meg.	½	RE136	BTS-15 Meg.	Br.-Grn.-Blue AF Grid
21	270KΩ	½	RE138	BTS-270K	Red-Vi.-Yl. AF Plate Load
22	500KΩ	½	RE134	BTS-470K	Grn.-Blk.-Yl. Output Grid
23	180Ω	2	RE132	BW-2-180	Br.-Gray-Br. Output Cathode
24	680Ω	1	RE131	BTA-680	Blue-Gray-Br. Filter
25	180Ω	2	RE130	BW-2-180	Br.-Gray-Br. Filter
26	330Ω	½	RE137	BW-½-330	Or.-Or.-Br. Pilot Light Shunt-See Note 2
27	150Ω	2	RE137-A	BW-2-150	Br.-Grn.-Br. Surge Limiter-See Note 3
28	15 Meg.	½	RE136	BTS-15 Meg.	Br.-Grn.-Blue AVC Network

Note 1-Used only in models utilizing minature tubes.
Note 2-Used only in models utilizing minature tubes and having serial numbers below 7000.
Note 3-Used only in model utilizing minature tubes and having serial number above 7000.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		SIMPLON PART No.	STANCOR PART No.	THORDAR'N PART No.		
	PRI.	SEC.	PRI.	SEC.					
29	2000Ω	3.6Ω	145Ω	.85Ω	TR139	A-3876	T22S45		

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			SIMPLON PART No.	JENSEN PART No.		
	FIELD	VC IMP.		ST-107		
30	PM	3.6Ω	SP105	Mod. P5-V		
	CONE DIA.	VC DIA.				
31	4-3/4"	1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT			

R F COILS

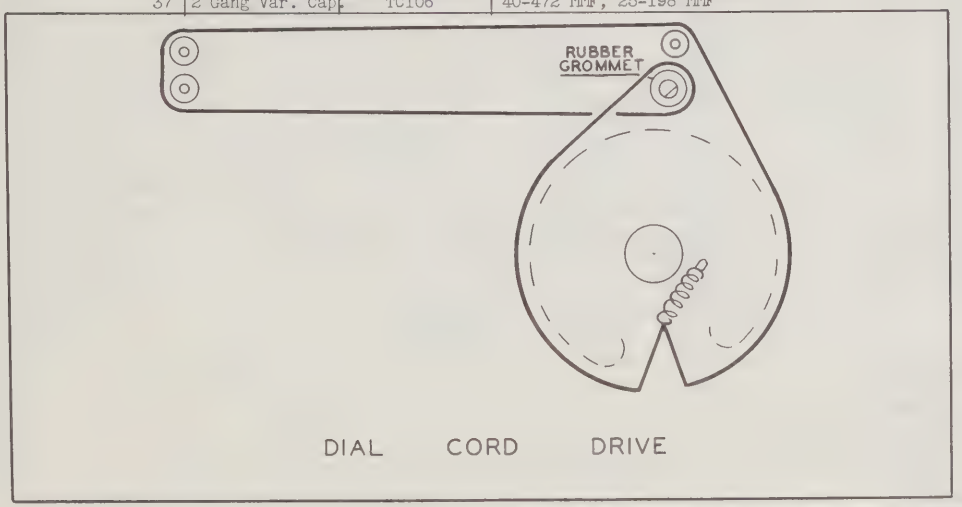
ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	SIMPLON PART No.	MEISSNER PART No.	
32	Loop Ant.	.1Ω	1.2Ω	ANT113		
33	Osc. Coil		6Ω	OSC116	14-1040	
34	Input IF	25Ω	24Ω	IF107	16-6658	
35	Output IF	23Ω	22Ω	IF108	16-6660	

DIAL LIGHT

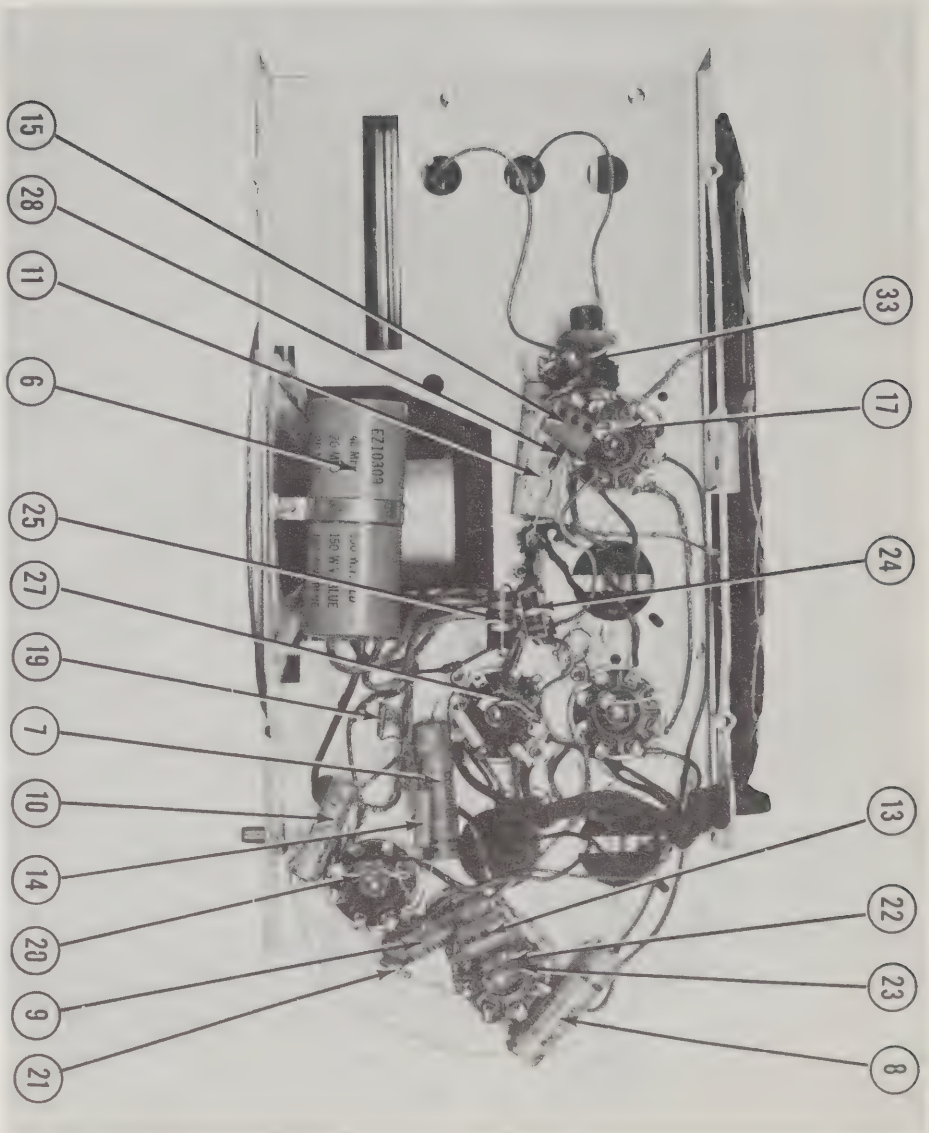
ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					SIMPLON PART No.		
36	Bayonet	6-8	0.15	Brown	B110		Type 47

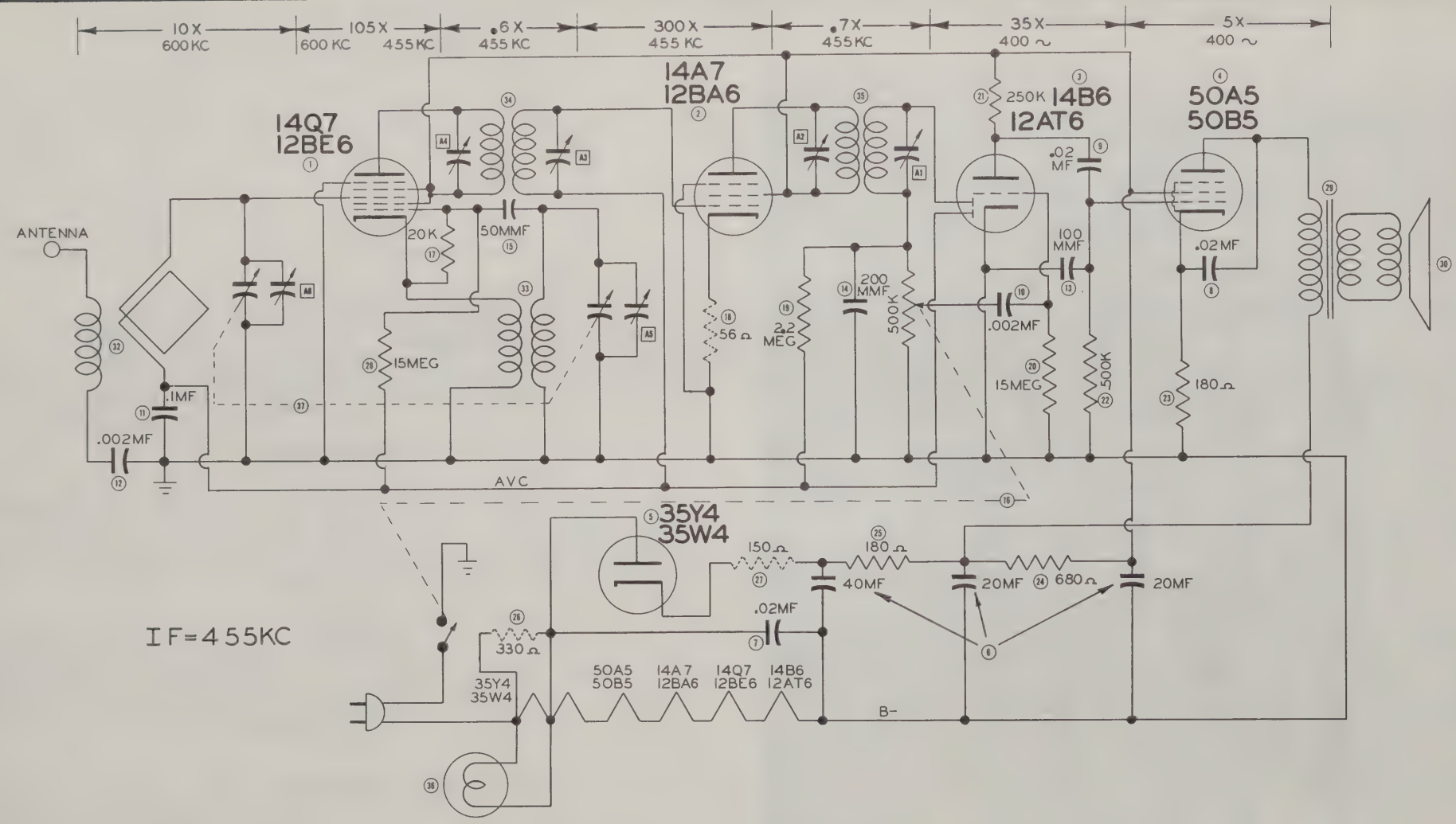
MISCELLANEOUS

ITEM No.	PART NAME	SIMPLON PART No.	NOTES
37	2 Gang Var. Cap.	TC106	40-472 MMF, 25-198 MMF



CHASSIS—BOTTOM VIEW





VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	14Q7	25V.AC	93V.DC	93V.DC	-6.1V.DC	0V.	-.7 V.DC	0V.	13V.AC
2	14A7	37V.AC	93V.DC	93V.DC	0V.	0V.	-.7 V.DC	0V.	25V.AC
3	14B6	13V.AC	70V.DC	-.5V.DC	0V.	-.7V.DC	-.7 V.DC	0V.	0V.
4	50A5	87V.AC	102V.DC	93V.DC	0V.	0V.	0V.	5.8V.DC	37V.AC
5	35Y4	117V.AC	113V.AC	0V.	113V.AC	0V.	120V.DC	120V.DC	87V.AC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	14Q7	24Ω	60KΩ	60KΩ	20KΩ	0Ω	2.2MEG.	.5Ω	12Ω
2	14A7	32Ω	60KΩ	60KΩ	0Ω	0Ω	2.2MEG.	0Ω	24Ω
3	14B6	12Ω	360KΩ	15MEG.	0Ω	2.2MEG.	480KΩ	0Ω	0Ω
4	50A5	80Ω	60KΩ	60KΩ	0Ω	0Ω	490KΩ	150Ω	32Ω
5	35Y4	103Ω	100Ω	0Ω	100Ω	INF.	60KΩ	60KΩ	80Ω

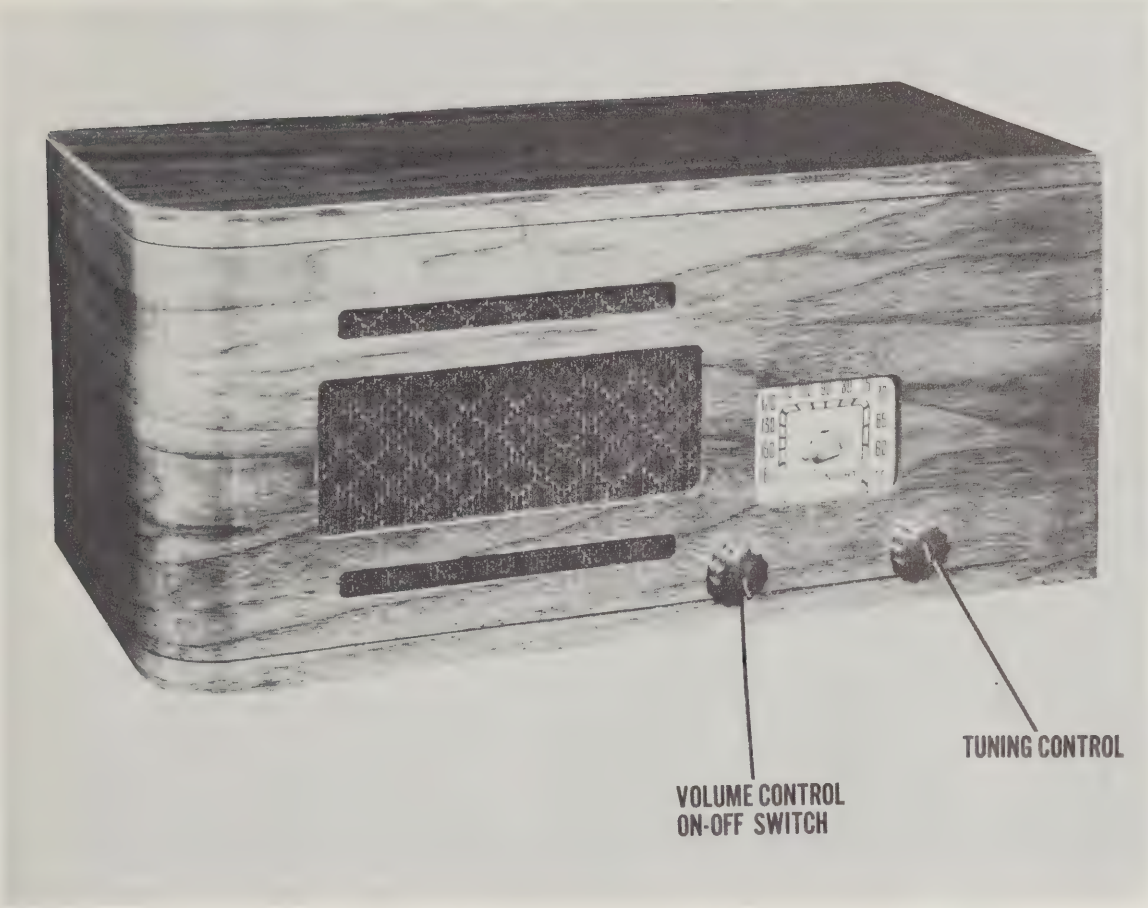
RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY
ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

477-30

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of + 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

SKY NIGHT
MODEL CB-500-P



SKY NIGHT
MODEL CB-500-P

SKY KNIGHT MODEL CB-500-P

TRADE NAME	Sky Knight, Model CB-500-P
SUPPLIER	Butler Bros., Randolph and Canal Sts., Chicago 80, Ill.
TYPE SET	Battery Operated Superheterodyne Receiver
TUBES (FIVE)	Types, 1R5 Converter, 1T4 IF Amp., 1T4 IF Amp., 1S5 Det.-AVC-AF, 3S4 Power Output.
POWER SUPPLY	1½ Volt "A" Battery & 90 Volt "B" Battery in Pack Form (Eveready 758)
RATING	54MA @ 1.6 Volts DC & 9.6MA @ 92 Volts DC
TUNING RANGE—BROADCAST	540-1650KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control at maximum position, Output of signal generator should be no higher than necessary to obtain output reading. Use an insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD.	High side to Pin 6 (grid) 1R5. Low side to chassis.	455KC	Slugs out all the way.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output.
200MMFD	High side to ext. ant. lead. Low side to chassis.	1600KC	1600KC	"	A5	" " " "
200MMFD	"	"	Tune for maximum output.	"	A6	" " " "
200MMFD	"	1400KC	"	"	A7	" " " "

HOWARD W. SAMS & CO., INC. **Indianapolis Indiana**

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed."
"Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1947 by Howard W. Sams & Co., Inc., Indianapolis, Indiana, U. S. A. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc."

PARTS LIST AND DESCRIPTIONS

SKY KNIGHT
MODEL CB-500-E

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		SKY KNIGHT PART No.	STANDARD REPLACEMENT		
1	Conv.	1R5	1R5	7AT	
2	IF Amp.	1T4	1T4	6AR	
3	IF Amp.	1T4	1T4	6AR	
4	Det.-AVC-AF	1S5	1S5	6AU	
5	Power Output	3S4	3S4	7BA	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT	SKY KNIGHT PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	
6	20	150		PRS150-20	BR2015	TC45	M-20-150	UT-201	Pwr. Supp. Bypass
7	.01	400		484-01	DT4S1	TP421	S-4-01	TC-11	Output Plate Bypass
8	.01	400		484-01	DT4S1	TP421	S-4-01	TC-11	Audio Coupling
9	.05	200		484-05	DT4S5	TP426	S-4-05	TC-15	Audio Screen Bypass
10	.01	400		484-01	DT4S1	TP421	S-4-01	TC-11	Audio Coupling
11	.05	200		484-05	DT4S5	TP426	S-4-05	TC-15	Screen Bypass
12	.05	400		484-05	DT4S5	TP426	S-4-05	TC-15	AVC Filter
13	60	500		1468-00005	5W5Q5	MC225	M0.5-45	1FM-45	Audio Plate Bypass
14	300	500		1468-0003	5W5T3	MC241	M0.5-33	1FM-33	IF Bypass Diode
15	300	500		1468-0003	5W5T3	MC241	M0.5-33	1FM-33	IF Coupling
16	50	500		1468-00005	5W5Q5	MC225	M0.5-45	1FM-45	Osc. Grid Capacitor
17	60	500		1468-00005	5W5Q5	MC225	M0.5-45	1FM-45	Ant. Coupling
18	400	500		1468-0004	5W5T4	MC243	M0.5-34	1FM-34	Conv. Screen Bypass
19	500	500		1468-0005	5W5T5	MC245	M0.5-35	1FM-35	AVC Filter

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA				INSTALLATION NOTES
	RESISTANCE	WATTS	SKY KNIGHT PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
20A	1 Meg.	1		MR53	D13-137	M-63-Z	Volume Control
B	Shaft			Not Req.	A	Not Req.	Attach to 20A per instructions
C	Switch			M27	42	SW-A2	" " " " "

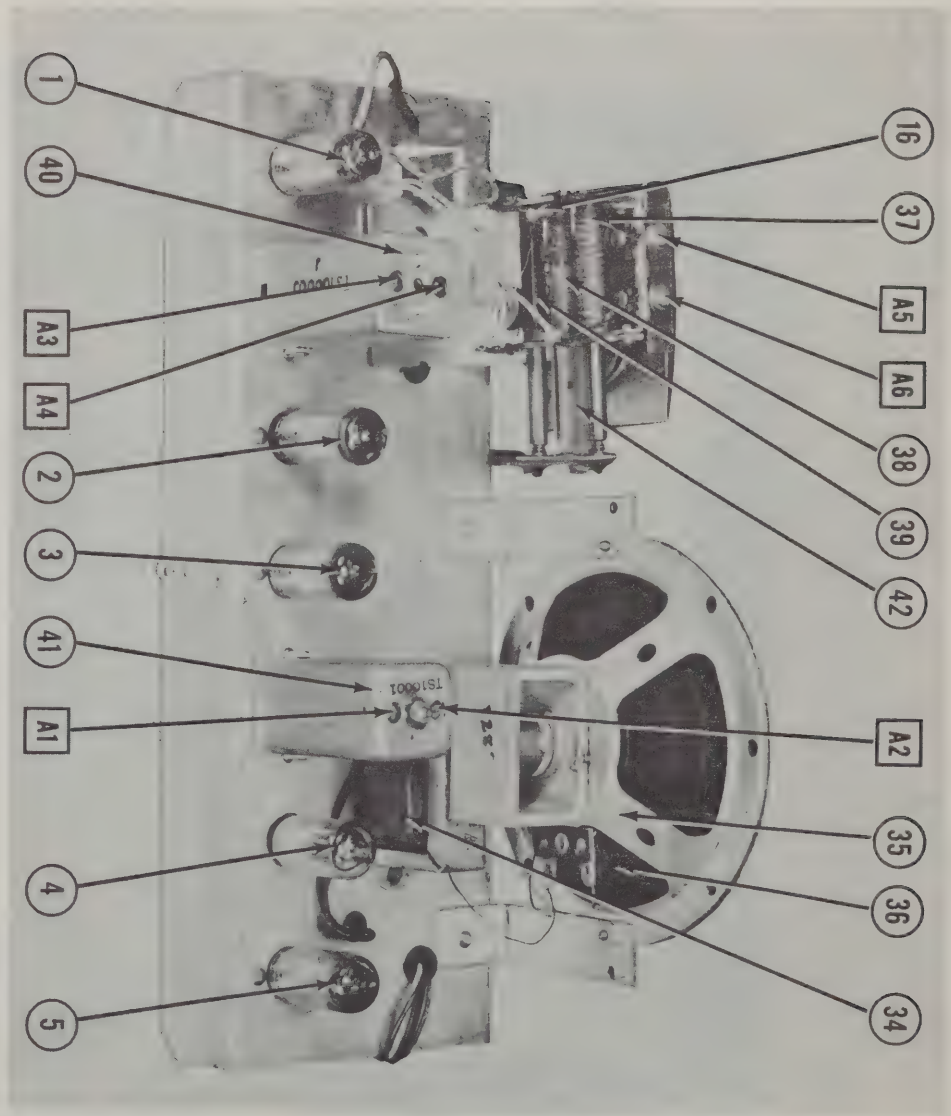
RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	SKY KNIGHT PART No.	IRC PART No.	
21	100KΩ	½		BTS-100K	Br.-Blk.-Yl. Oscillator Grid
22	100KΩ	½		BTS-100K	Br.-Blk.-Yl. AVC Network
23	22KΩ	½		BTS-22K	Red-Red-Or. Converter Screen Dropping
24	4700Ω	½		BTS-4700	Yl.-Vi.-Red IF Plate Load
25	2.2 Meg.	½		BTS-2.2 Meg.	Red-Red-Grn. 2nd IF Grid
26	2.2 Meg.	½		BTS-2.2 Meg.	Red-Red-Grn. AVC Network
27	10KΩ	½		BTS-10K	Br.-Blk.-Or. Screen Dropping
28	10 Meg.	½		BTS-10 Meg.	Br.-Blk.-Blue AF Grid
29	4.7 Meg.	½		BTS-4.7 Meg.	Yl.-Vi.-Grn. AF Screen Dropping
30	1.2 Meg.	½		BTS-1.2 Meg.	Br.-Red-Grn. AF Plate Load
31	3.0 Meg.	½		BTS-3.3 Meg.	Or.-Blk.-Grn. Output Grid
32	390Ω	½		BW-½-390	Or.-White-Br. Bias
33	4700Ω	½		BTS-4700	Yl.-Vi.-Red Output Screen Dropping

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		SKY KNIGHT PART No.	STANCOR PART No.	THORDAR'N PART No.		
	PRI.	SEC.	PRI.	SEC.					
34	9600Ω	3.5Ω	360Ω	.65Ω	TO-10002	A-3879	T22847		

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

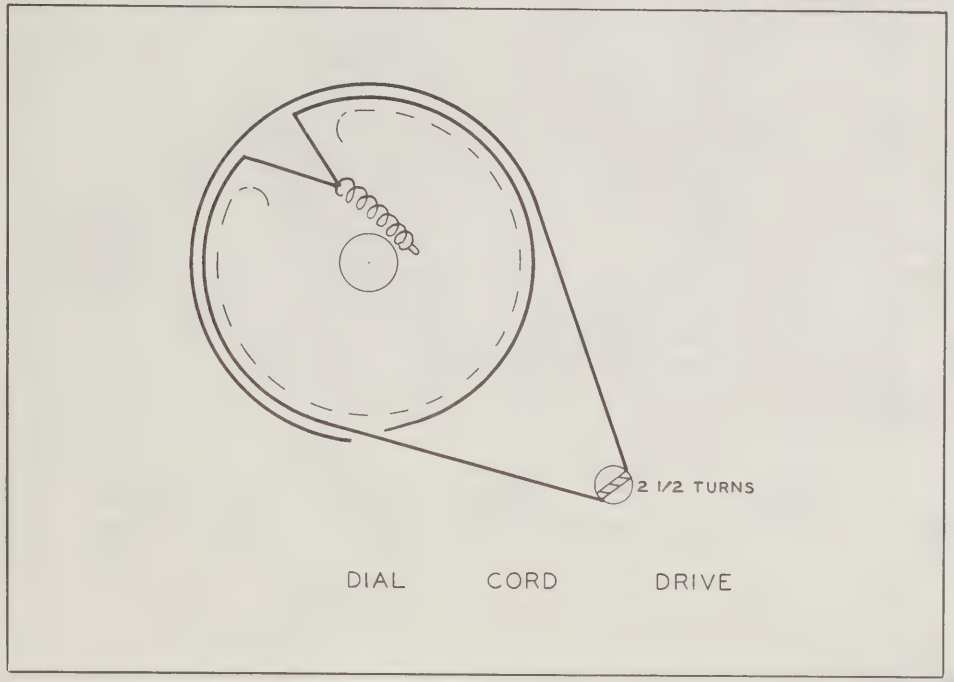
ITEM No.	RATINGS		REPLACEMENT DATA: SKY KNIGHT PART No.	REPLACEMENT DATA: JENSEN PART No.		INSTALLATION NOTES
	FIELD	VC IMP.		ST-105*		*Remount output transformer.
35	PM	3.5Ω		Mod. P5-X		
	CONE DIA.	VC DIA.				
36	4-3/4"	1/2"	NOT READILY	REPLACEABLE-USE COMPLETE SPEAKER UNIT.		

R F COILS

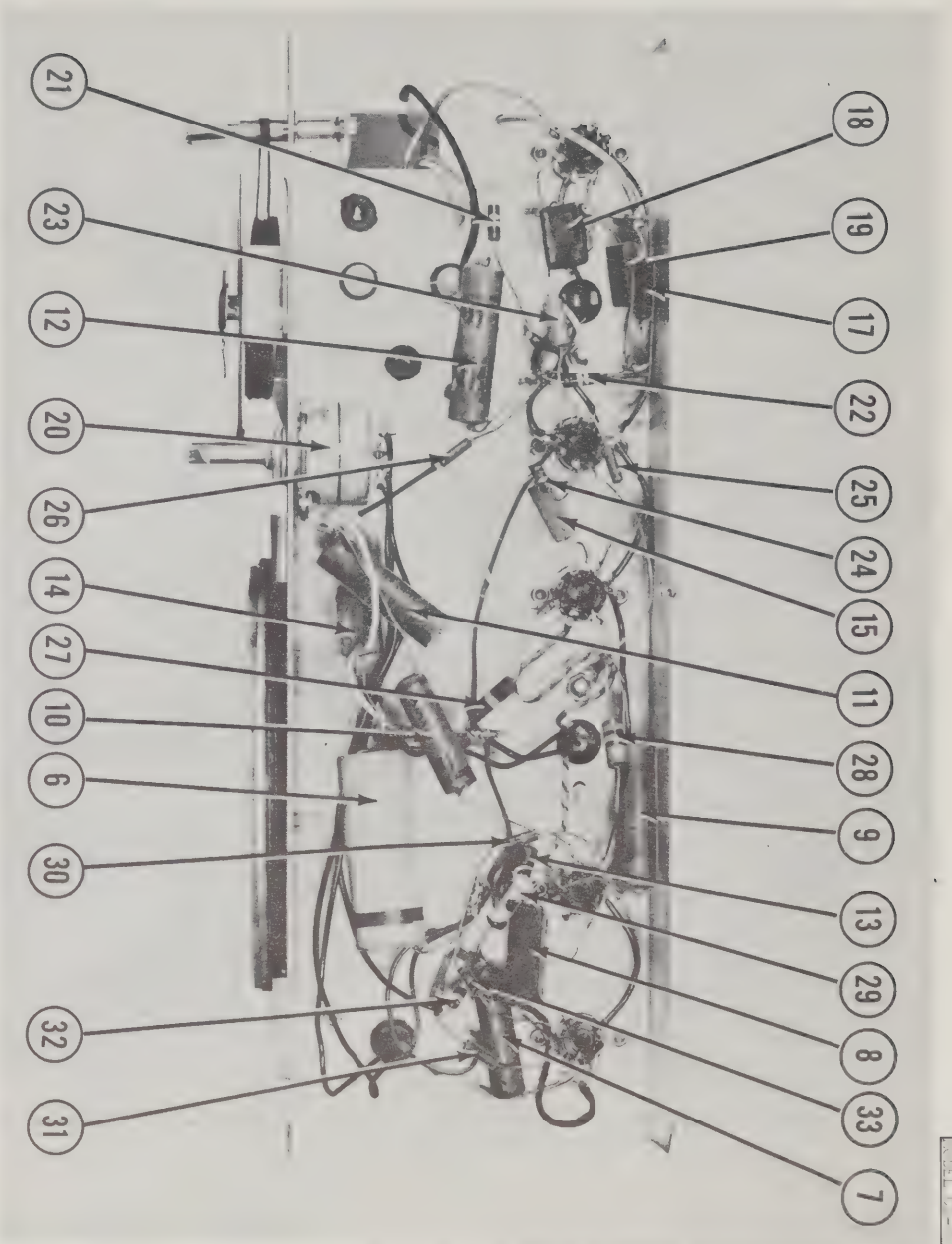
ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA: SKY KNIGHT PART No.	REPLACEMENT DATA: MEISSNER PART No.
37	Ant. Coil		5.5Ω		
38	Osc. Coil		15Ω 2Ω		
39	Osc. Shunt Coil		8Ω		
40	Input IF	28Ω	28Ω	TS10000J	16-6658
41	Output IF	19Ω	19Ω	TS10001	16-6660

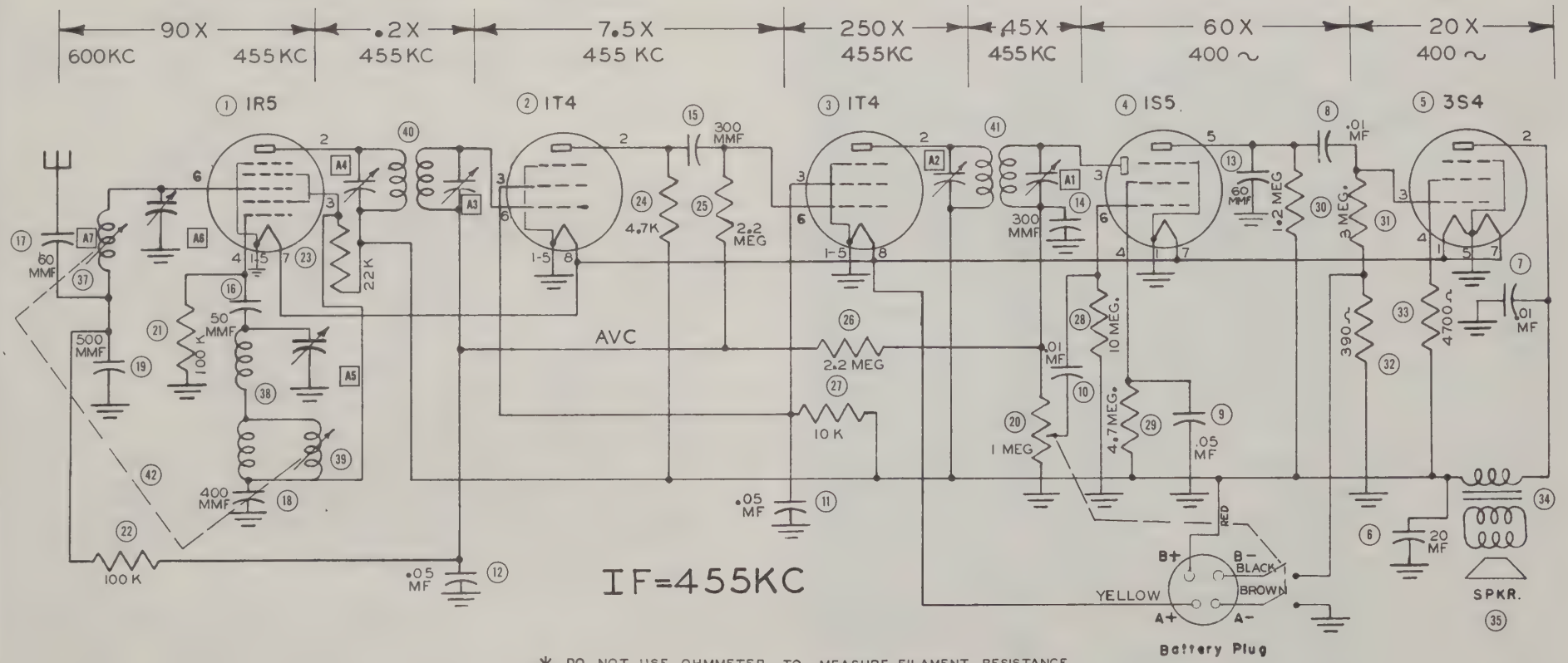
MISCELLANEOUS

ITEM No.	PART NAME	SKY KNIGHT PART No.	NOTES
42	Tuner Assby.		



CHASSIS—BOTTOM VIEW





✱ DO NOT USE OHMMETER TO MEASURE FILAMENT RESISTANCE

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
1	IR5	0V.	84V.DC	48V.DC	-1.5V.DC	0V.	0V.	1.6V.DC
2	IT4	0V.	72V.DC	65V.DC	84V.DC	0V.	0V.	1.6V.DC
3	IT4	0V.	84V.DC	65V.DC	0V.	0V.	0V.	1.6V.DC
4	IS5	0V.	0V.	-1V.DC	70V.DC	86V.DC	0V.	1.6V.DC
5	3S4	1.6V.DC	82V.DC	-3V.DC	79V.DC	0V.	82V.DC	1.6V.DC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
1	IR5	✱	78KΩ	100KΩ	94KΩ	✱	3.2 MEG.	✱
2	IT4	✱	84KΩ	90KΩ	78KΩ	✱	3.2 MEG.	✱
3	IT4	✱	78KΩ	90KΩ	INF.	✱	5 MEG.	✱
4	IS5	✱	INF.	1 MEG.	5 MEG.	1.2 MEG.	10 MEG.	✱
5	3S4	✱	65KΩ	2.5 MEG	70KΩ	✱	65KΩ	✱

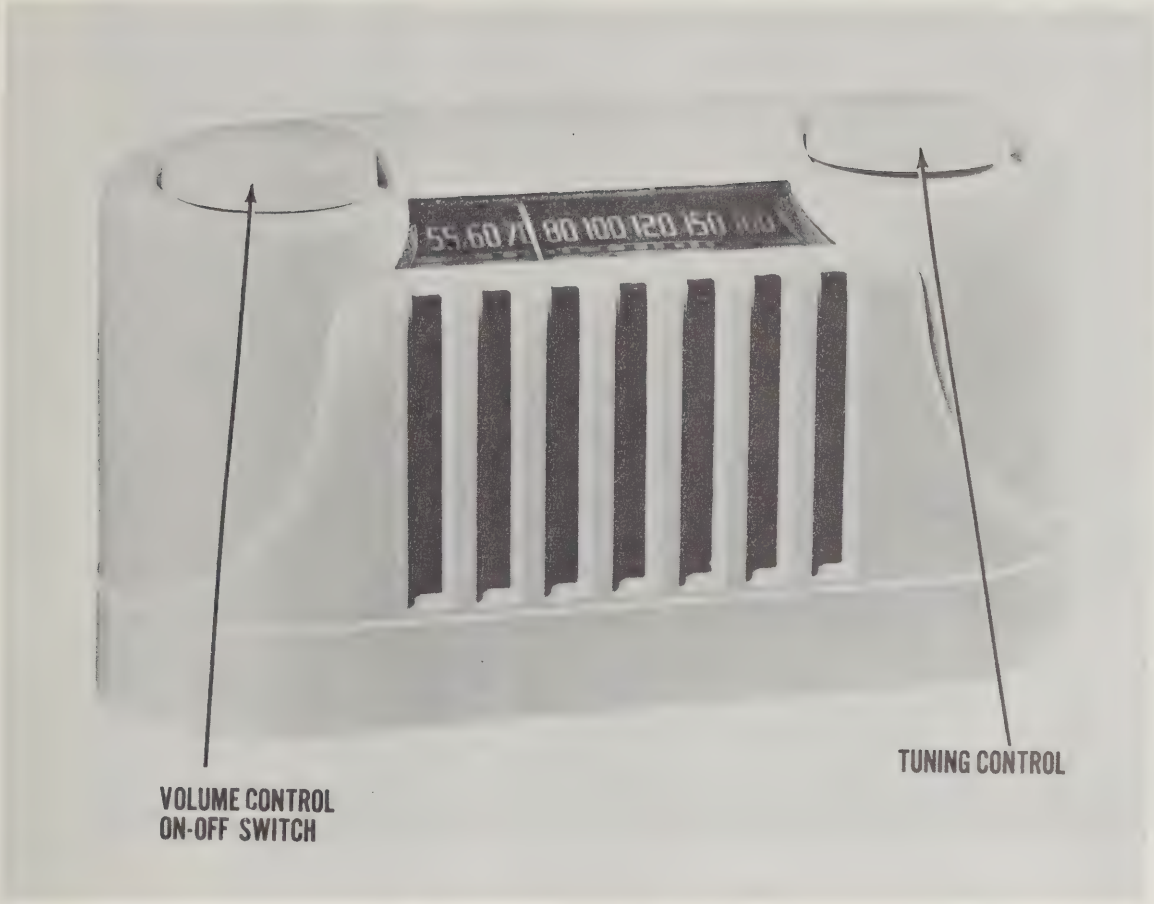
THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

477-31

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of porbes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is shorted to chassis.

1 - DC Voltage measurements are at 20,000 ohms per volt.
2 - Socket connections are shown as bottom views.
3 - Measured values are from socket pin to common negative.
4 - Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
5 - Volume control at maximum, no signal applied for voltage measurements.



STEWART-WARNER
MODELS A51T1, A51T2, A51T3, A51T4

STEWART-WARNER MODEL A51T3

TRADE NAME	Stewart-Warner, Models A51T1 (Code 9020-A), A51T2 (Code 9020-B), A51T3 (Code 9020-C), A51T4 (Code 9020-D)
MANUFACTURER	Stewart-Warner Corp., 1826 Diversey Pkwy., Chicago, Ill.
TYPE SET	AC-DC Operated Superheterodyne Receiver-Self Contained Loop Antenna
TUBES (FIVE)	Types, 12BE6 1st Det.-Osc., 12BA6 IF Amp., 12AT6 2nd Det.-AVC-AF, 50B5 Power Output, 35W4 Rectifier.
POWER SUPPLY	110-120 Volts AC-DC
TUNING RANGE—BROADCAST	540-1600KC SHORT WAVE .240 Amp. @ 117 Volts AC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer, turn tuning cap fully closed and set pointer 1/8" to left of 55 mark on dial. Use isolation transformer if available. If not, connect a capacitor in series with low side of signal generator and B-. Volume control at maximum position. Output of signal generator should be no higher than necessary to obtain output reading. Use an insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
200MMFD	High side to stator of large section of tuning cap. Low side to B-.	455KC	Tuning cap. fully open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output.
200MMFD	High side to ext. ant. lead. Low side to chassis.	1500KC	1500KC	"	A5	Adjust for maximum output.
200MMFD	"	"	Tune for maximum output.	"	A6	" " " "

HOWARD W. SAMS & CO., INC. Indianapolis Indiana

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed." "Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1947 by Howard W. Sams & Co., Inc., Indianapolis, Indiana, U. S. A. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc."

PARTS LIST AND DESCRIPTIONS

STEWART-WARNER MODELS
A51T1, A51T2, A51T3, A51T4

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: STEWART-WARNER PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	1st Det.-Osc.	12BE6	12BE6	7CH	
2	IF Amp.	12BA6	12BA6	7CC	
3	Det.-AVC-AF	12AT6	12AT6	7BT	
4	Power Output	50B5	50B5	7BZ	
5	Rectifier	35W4	35W4	5BQ	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: STEWART-WARNER PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
6	20	150	504431	PRS150-20	BR2015	TC45	M-20-150	UT-201	Filter
7	20	150	504431	PRS150-20	BR2015	TC45	M-20-150	UT-201	"
8	.05	400	504444	484-05	DT4S5	TP426	S-4-05	TC-15	Line Filter
9	.01	400	504449	484-01	DT4S1	TP421	S-4-01	TC-11	Output Plate Bypass
10	.01	150	504450		ZN1S1	MT125	TTF-1.5-01		Audio Coupling
11	.004	150	504445		ZN1S1	MT125	TTF-1.5-01	"	"
12	.05	400	504444	484-05	DT4S5	TP426	S-4-05	TC-15	AVC Filter
13	.1	400	504446	484-.1	DT4P1	TP428	S-4-1	TC-1	Line Isolation
14	.004	400	502156	484-004	DT6D4	TP407	S-6-004	TC-24	Ext. Ant. Coupling
15	260	500	502271	1468-00025	5W5T25	MC240	MO.5-325	1FM-325	Audio Plate Bypass
16	260	500	502271	1468-00025	5W5T25	MC240	MO.5-325	1FM-325	IF Bypass Vol. Cont.
17	50	500	504434						Osc. Grid Capacitor Cer.
18	10	500	502295						Fixed Trimmer Cer.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: STEWART-WARNER PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
19A	1 Meg.	1	504391	MK402	D13-137	AM-63-Z	Volume Control
B	Shaft		Not Req.	Not Req.	E	KSS-3	Attach to 19A per instructions
C	Switch		" "	M26	41	SW-A	" " " " "

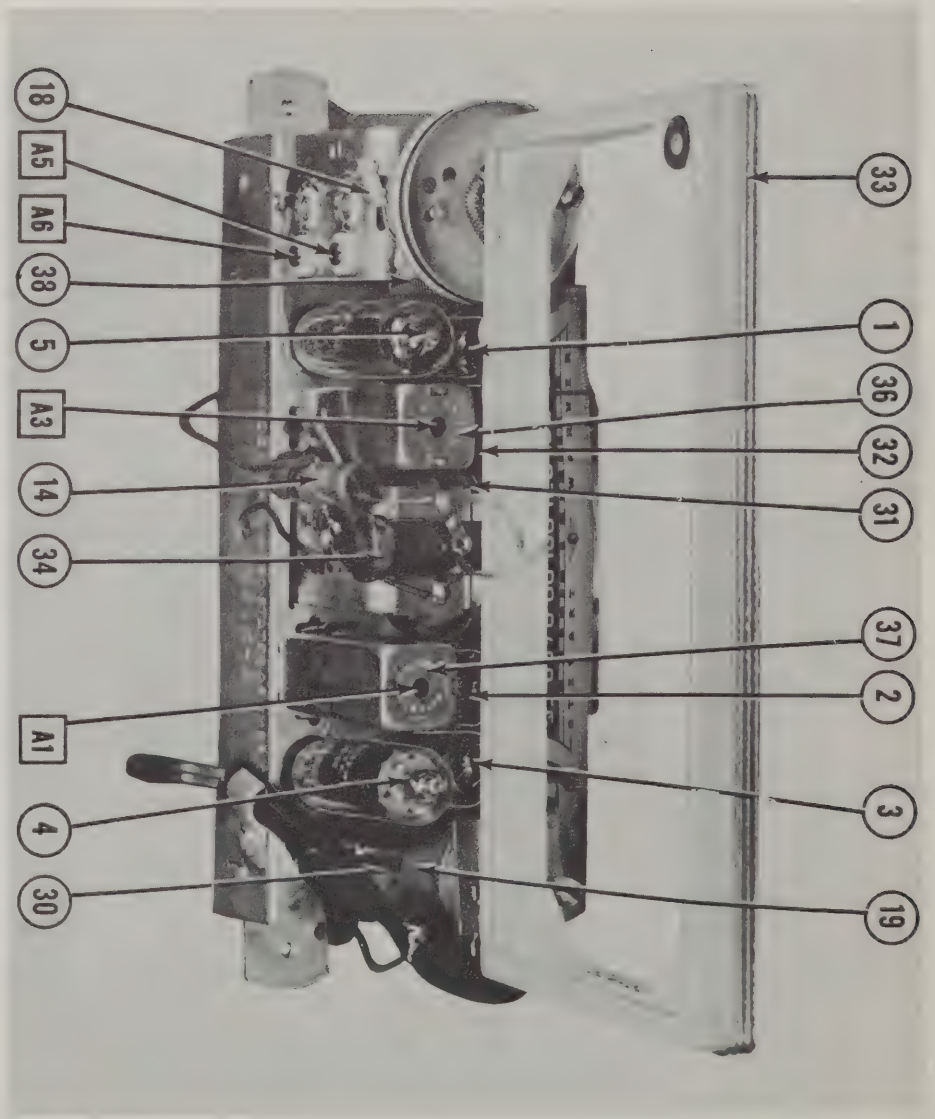
RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: STEWART-WARNER PART No.	IRC PART No.	IDENTIFICATION CODES
20	22KΩ	1/3	504440	BTS-22K	Red-Red-Or. Oscillator Grid
21	220KΩ	1/3	504435	BTS-220K	Red-Red-Yl. Line Isolation
22	82Ω	1/2	504436	BW-½-82	Gray-Red-Blk. IF Cathode
23	2.2 Meg.	1/3	504441	BTS-2.2 Meg.	Red-Red-Grn. AVC Network
24	3.3 Meg.	1/3	504439	BTS-3.3 Meg.	Or.-Or.-Grn. AF Grid
25	470KΩ	1/3	504438	BTS-470K	Yl.-Vi.-Yl. AF Plate Load
26	470KΩ	1/3	504438	BTS-470K	Yl.-Vi.-Yl. Output Grid
27	150Ω	1/2	504437	BW-½-150	Br.-Grn.-Br, Output Cathode
28	1500Ω	1	504442	BTA-1500	Br.-Grn.-Red Filter
29	33Ω	1/2	502574	BW-½-33	Or.-Or.-Blk. Rectifier Ballast

TRANSFORMER (OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: STEWART-WARNER PART No.	STANCOR PART No.	THORDAR'N PART No.		INSTALLATION NOTES
30	2500Ω	3.5Ω	144Ω tapped @ 7Ω	.55Ω	504454				

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

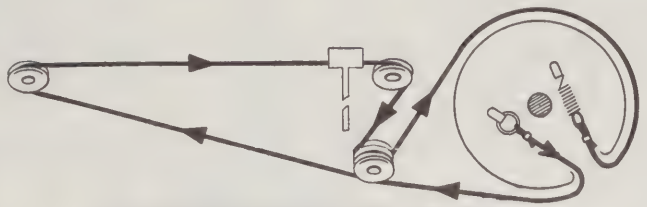
ITEM No.	RATINGS		REPLACEMENT DATA: STEWART-WARNER PART No.	JENSEN PART No.		INSTALLATION NOTES
31	FIELD PM	VC IMP. 3.5Ω	504455			
32	CONE DIA. 3-3/8"	VC DIA. 1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.			

R F COILS

ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA: STEWART-WARNER PART No.	MEISSNER PART No.
33	Loop Ant.		0Ω	504453	
34	Ant. Coupling	.3Ω	1.5Ω	504451	
35	Osc. Coil	1Ω	8Ω	504458	
36	Input IF	19Ω	19Ω	504392	16-6668
37	Output IF	19Ω	19Ω	504392	16-6669

MISCELLANEOUS

ITEM No.	PART NAME	STEWART-WARNER PART No.	NOTES
38	2 Gang Var.Cap.	504390	37-503 MMF, 29-196 MMF
	Dial Scale	504545	Models 51T2 & 51T3
	" "	505099	Models 51T4
	Pointer	504544	
	Dial Window	504472	

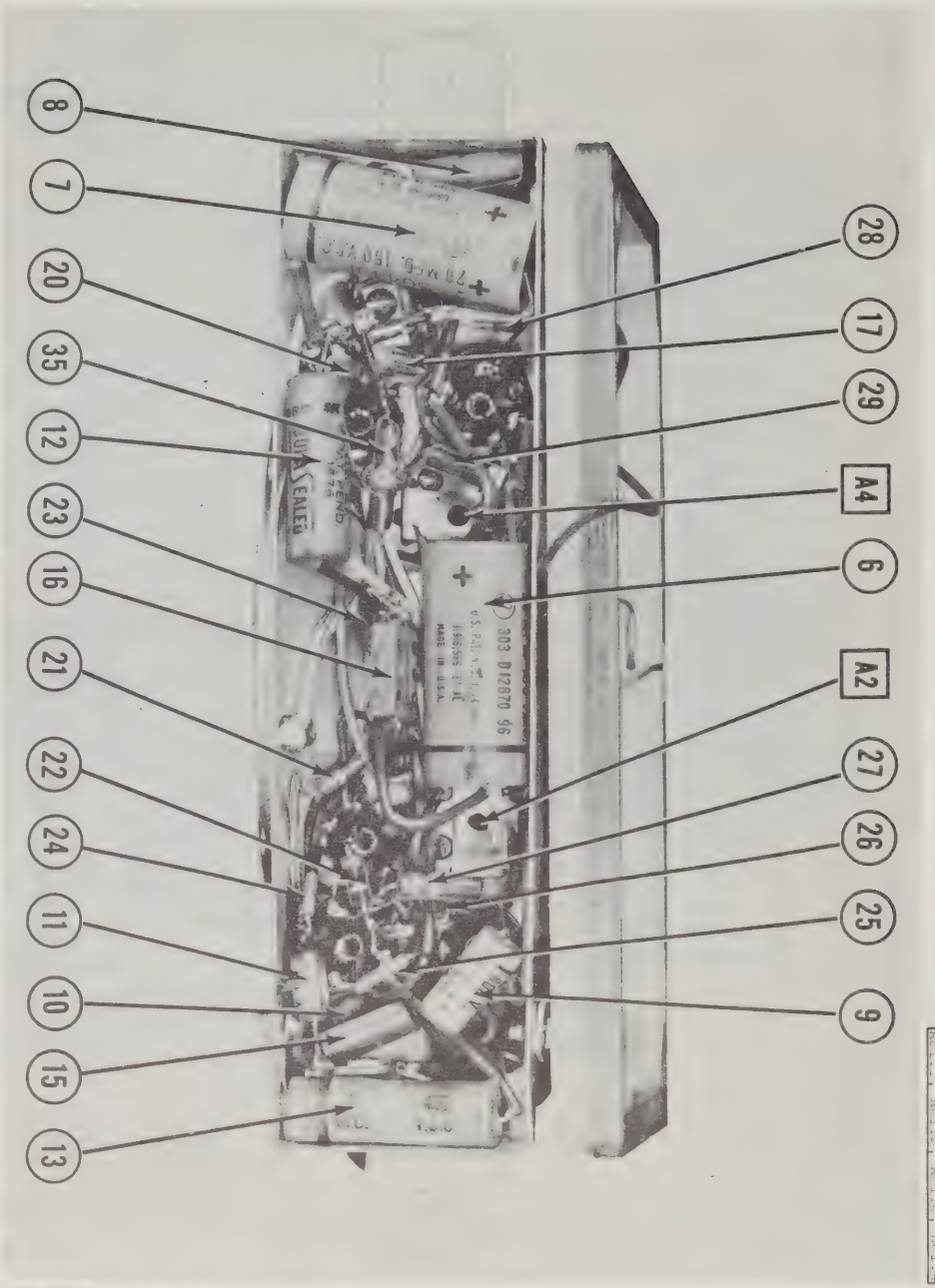


DIAL AND POINTER DRIVE CORD ARRANGEMENT

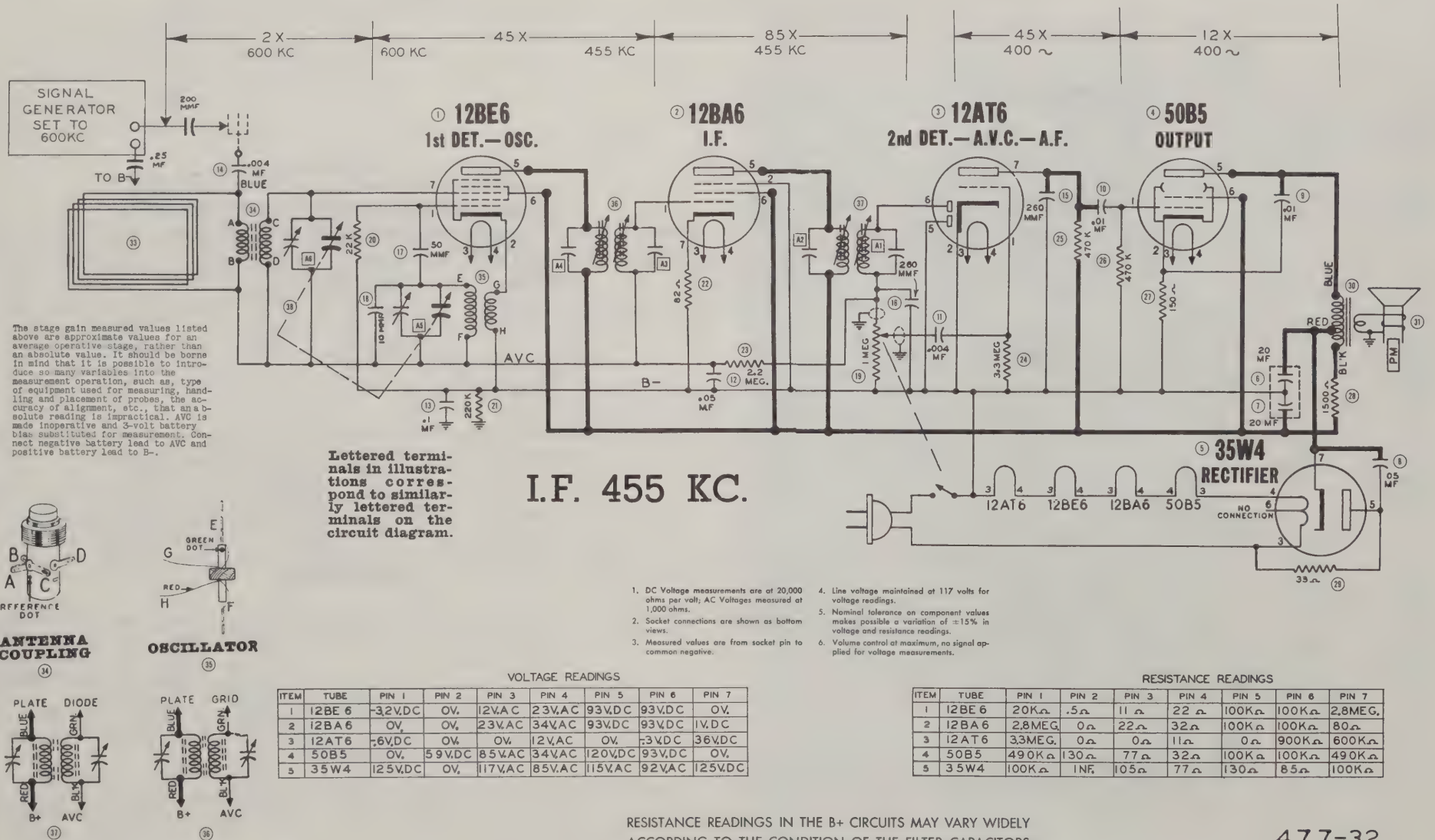
To string dial cord, turn the drive drum to maximum **clockwise** position and use the following parts:

114955 Clip on end of cord
117057 Cord (2 feet required)
119087 Ring for dial cord
505161 Tension Spring

CHASSIS—BOTTOM VIEW



STEWART-WARNER MODELS
A5111, A5112, A5172, A5174



The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement. Connect negative battery lead to AVC and positive battery lead to B—.

Lettered terminals in illustrations correspond to similarly lettered terminals on the circuit diagram.

ANTENNA COUPLING

(34)

OSCILLATOR

(35)

(37)

(36)

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

VOLTAGE READINGS

ITEM	TUBE	PIN 1	PIN 2	PIN 3	PIN 4	PIN 5	PIN 6	PIN 7
1	12BE 6	-3.2V.DC	0V.	12V.AC	23V.AC	93V.DC	93V.DC	0V.
2	12BA6	0V.	0V.	23V.AC	34V.AC	93V.DC	93V.DC	1V.DC
3	12AT6	-.6V.DC	0V.	0V.	12V.AC	0V.	-3V.DC	36V.DC
4	50B5	0V.	59V.DC	85V.AC	34V.AC	120V.DC	93V.DC	0V.
5	35W4	125V.DC	0V.	117V.AC	85V.AC	115V.AC	92V.AC	125V.DC

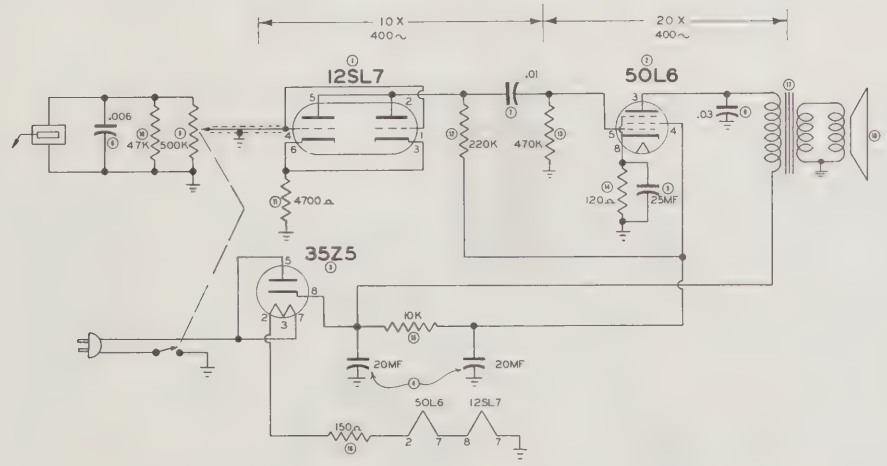
RESISTANCE READINGS

ITEM	TUBE	PIN 1	PIN 2	PIN 3	PIN 4	PIN 5	PIN 6	PIN 7
1	12BE 6	20KΩ	.5Ω	11Ω	22Ω	100KΩ	100KΩ	2.8MEG.
2	12BA6	2.8MEG.	0Ω	22Ω	32Ω	100KΩ	100KΩ	80Ω
3	12AT6	3.3MEG.	0Ω	0Ω	11Ω	0Ω	900KΩ	600KΩ
4	50B5	490KΩ	130Ω	77Ω	32Ω	100KΩ	100KΩ	490KΩ
5	35W4	100KΩ	INF.	105Ω	77Ω	130Ω	85Ω	100KΩ

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

SWANK MODEL ER61

TRADE NAME	Swank, Model ER61
MANUFACTURER	Lindex Corp., 602 East 23rd St., New York, N.Y.
TYPE SET	AC Operated Portable Phono with 3 Tube Amplifier & Speaker.
TUBES(THREE)	Types, 12SL7GT AF Amp., 50L6GT Power Amp., 35Z5GT Rectifier.
POWER SUPPLY	110-120 Volts AC RATING .230 Amp. @ 117 Volts AC



477-33

VOLTAGE READINGS

ITEM	TUBE	PIN 1	PIN 2	PIN 3	PIN 4	PIN 5	PIN 6	PIN 7	PIN 8
1	12SL7GT	0V.	50VDC	11VDC	0V.	50VDC	11VDC	0V.	13VAC
2	50L6GT	0V.	58VAC	125VDC	105VDC	0V.	0V.	13VAC	5.8VDC
3	35Z5GT	0V.	82VAC	87VAC	0V.	117VAC	0V.	117VAC	135VDC

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

RESISTANCE READINGS

ITEM	TUBE	PIN 1	PIN 2	PIN 3	PIN 4	PIN 5	PIN 6	PIN 7	PIN 8
1	12SL7GT	40KΩ	250KΩ	4000Ω	40KΩ	250KΩ	4000Ω	0Ω	15Ω
2	50L6GT	INF.	54Ω	30KΩ	40KΩ	405KΩ	INF.	15Ω	105Ω
3	35Z5GT	INF.	190Ω	200Ω	INF.	225Ω	INF.	225Ω	30KΩ

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

HOWARD W. SAMS & CO., INC. **Indianapolis Indiana**

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed." "Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1947 by Howard W. Sams & Co., Inc., Indianapolis, Indiana, U. S. A. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc."

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: SWANK PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	AF Amp.	12SL7GT	12SL7GT	8BD	
2	Power Output	50L6GT	50L6GT	7AC	
3	Rectifier	35Z5GT	35Z5GT	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: SWANK PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
4A	20	150		PRSA150-20-20	BRD2215	2N509	M-2x20-150	TA-220	Filter - Red
B	20	150							" - Green
5	25	25		PRS-25-25	BR252A	TC26	M-25-25	TA-25	Cath. Bypass
6	.03	600		684-03	DT6S3	TP413	S-6-03	TC-13	Output Plate Bypass
7	.01	200		484-01	DT4S1	TP421	S-4-01	TC-11	Audio Coupling
8	.006	600		684-006	DT6D6	TP409	S-6-006	TC-26	Tone Compensation

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: SWANK PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
9A	500KΩ	1		MR48	D13-133	M-60-Z	Volume Control
B	Shaft			Not Req.	A	Not Req.	Attach to 9A per instructions
C	Switch			M26	41	SW-A	" " " " "

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: SWANK PART No.	IRC PART No.	IDENTIFICATION CODES
10	47KΩ	½		BTS-47K	Yl.-Vl.-Or. Phono Shunt
11	4700Ω	½		BTS-4700	Yl.-Vl.-Red 1st AF Cathode
12	220KΩ	½		BTS-220K	Red-Red-Yl. 1st AF Plate Load
13	470KΩ	½		BTS-470K	Yl.-Vl.-Yl. Output Grid
14	120Ω	½		BW-½-120	Br.-Red-Br. Output Cathode
15	10KΩ	½		BTS-10K	Br.-Blk.-Or. Filter
16	150Ω	10		AB-150	Line Dropping

TRANSFORMER (OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: SWANK PART No.	STANCOR PART No.	THORDAR'N PART No.		INSTALLATION NOTES
17	1800Ω	3.9Ω	170Ω	.7Ω		A-3876	T22S45		

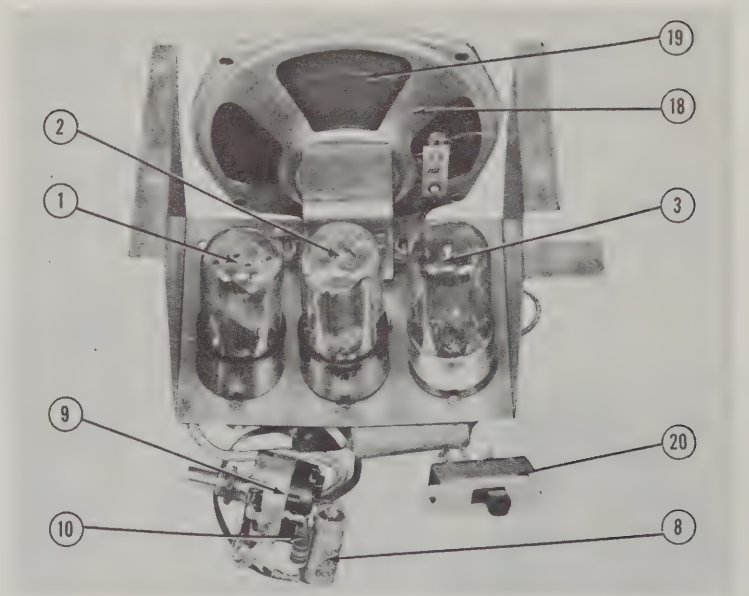
SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA: SWANK PART No.*	JENSEN PART No.		INSTALLATION NOTES
18	FIELD PM	VC IMP. 3.9Ω		ST-105† Mod. P5-X		†Fabricate new mounting clamp and drill new mounting holes.
19	CONE DIA. 4½"	VC DIA. 1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.			

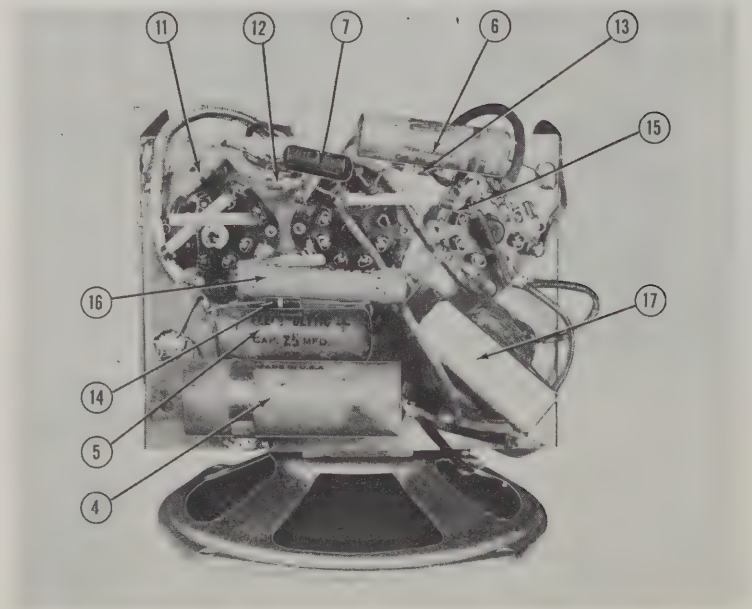
MISCELLANEOUS

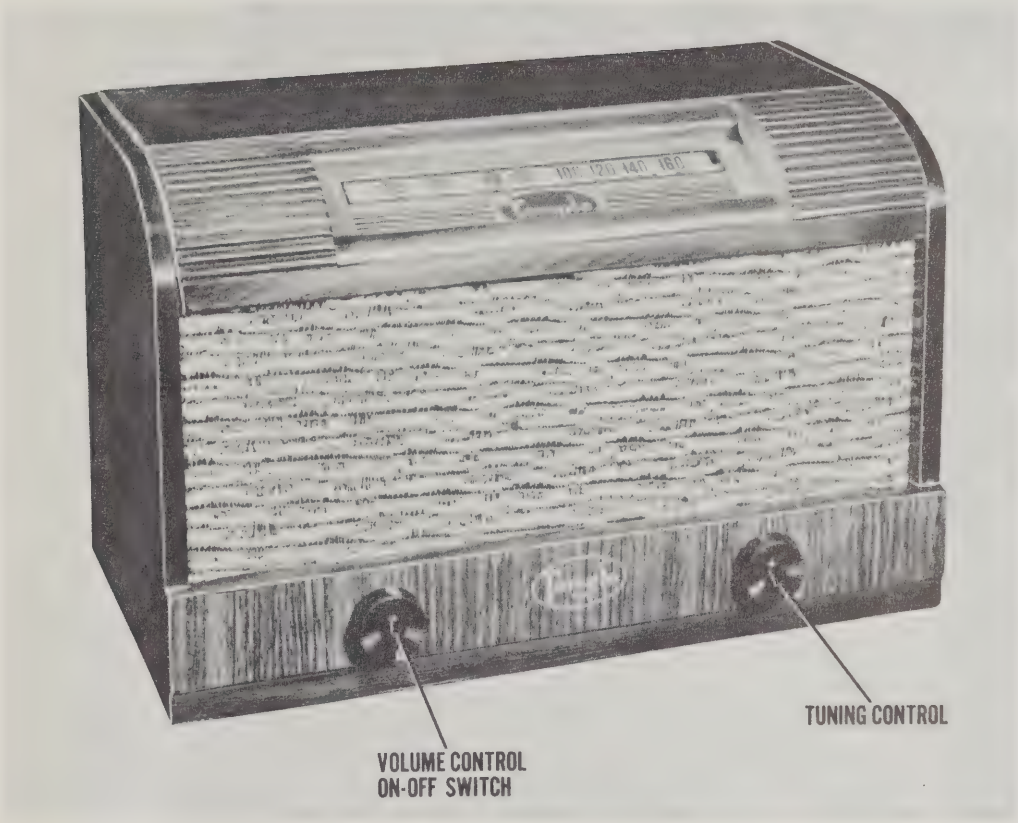
ITEM No.	PART NAME	SWANK PART No.	NOTES
20	Switch		Phono Motor Control

CHASSIS—TOP VIEW



CHASSIS—BOTTOM VIEW





TEMPLE
MODEL G-515

TEMPLE
MODEL G-515

TEMPLE MODEL G-515

TRADE NAME	Temple, Model G-515
MANUFACTURER	Templetone Radio Mfg. Corp., New London, Conn.
TYPE SET	AC-DC Operated Superheterodyne Receiver - Self Contained Loop Antenna
TUBES (FIVE)	Types, 14Q7 or 12SA7 Converter, 14A7 or 12SK7 IF Amp., 14B6 or 12SQ7 Det.-AVC-AF, 50L6GT Power Output, 35Y4 or 35Z5GT Rectifier.
POWER SUPPLY	110-120 Volts AC-DC
TUNING RANGE—BROADCAST	540-1620KC **RATING** .230 Amp. @ 117 Volts AC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer, turn slugs in completely and set pointer to last reference mark on left end of dial backplate. Use isolation transformer if available. If not, connect a capacitor in series with low side of signal generator and chassis. Volume control at maximum position, output of signal generator should be no higher than necessary to obtain output reading. Use an insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.01 MFD	High side to Pin 8 (grid) of 14Q7. Low side to chassis.	455KC	Slugs completely out.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If isolation transformer is not used, reduce dummy antenna to .001 MFD. to reduce hum modulation.
	Loop	1650KC	"	"	A5	Fashion loop of several turns of wire. Radiate signal into loop of receiver and adjust for maximum output.
	"	1500KC	Tune for maximum output.	"	A6	"
	"	600KC	"	"	A7	Rock tuning control and adjust for maximum output. Repeat last three steps for optimum performance.

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed." "Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1947 by Howard W. Sams & Co., Inc., Indianapolis, Indiana, U. S. A. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc."

PARTS LIST AND DESCRIPTIONS

TEMPLE MODEL G-515

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: TEMPLE PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1A	Converter	14Q7	14Q7	8AL	
B	"	12SA7	12SA7	8R	
2A	IF Amp.	14A7	14A7	8V	
B	" "	12SK7	12SK7	8N	
3A	Det.-AVC-AF	14B6	14B6	8W	
B	" " "	12SQ7	12SQ7	8Q	
4	Power Output	50L6GT	50L6GT	7AC	
5A	Rectifier	35Y4	35Y4	5AL	
B	"	35Z5GT	35Z5GT	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: TEMPLE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
6A	80	150		PRSA150-80-40	EZ55515C†	FP116	DSB-804020-150	TA-303†	Filter - Red
B	40	150				2N514		TA-240	" - Blue
C	20	25		PRS150-20					Cath. Bypass - Green
7	.1	200		484-.1	DT4P1	TP428	S-4-1	TC-1	Line Filter
8	.02	400		484-02	DT4S2	TP423	S-4-02	TC-12	Output Plate Bypass
9	.005	600		684-005	DT6D5	TP408	S-6-005	TC-25	Audio Coupling
10	.005	600		684-005	DT6D5	TP408	S-6-005	TC-25	" "
11	.1	200		484-.1	DT4P1	TP428	S-4-1	TC-1	AVC Filter
12	.1	200		484-.1	DT4P1	TP428	S-4-1	TC-1	RF Bypass Pwr. Supp.
13	.005	600		684-005	DT6D5	TP408	S-6-005	TC-25	Osc. Bypass
14	.01	600		684-01	DT6S1	TP410	S-6-01	TC-11	Ext. Ant. Coupling
15	220	500		1468-0002	5W5T2	MC237	M0.5-322	1FM-32	Audio Plate Bypass
16	100	500		1468-0001	5W5T1	MC235	M0.5-31	1FM-31	Osc. Grid Capacitor

†Parallel sections to obtain desired capacity.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: TEMPLE PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
17A	500KΩ	1	RP5-2	MK401	D13-133	AM-60-Z	Volume Control
B	Shaft		Not Req.	Not Req.	E	KSS-3	Attach to 17A per instructions
C	Switch		" "	M26	41	SW-A	" " " " "

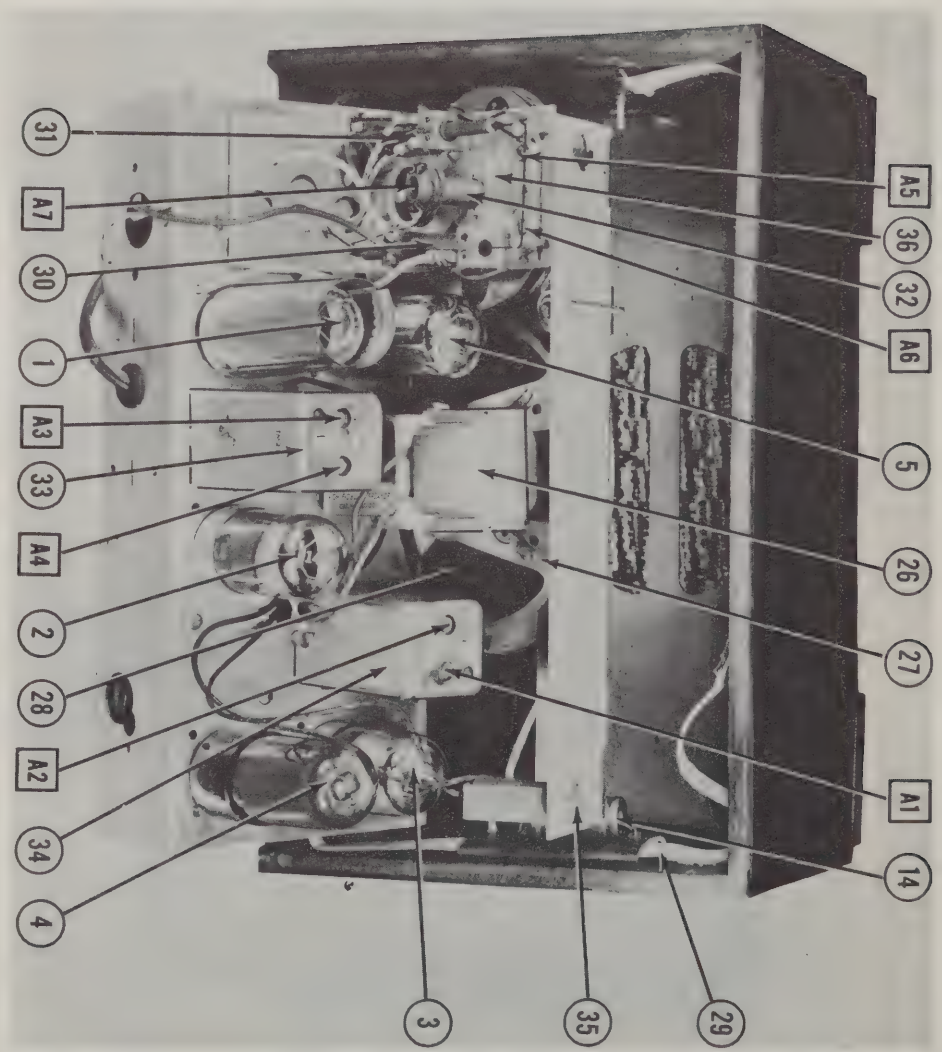
RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: TEMPLE PART No.	IRC PART No.	IDENTIFICATION CODES
18	22KΩ	½		BTS-22K	Red-Red-Or. Oscillator Grid
19	2.2 Meg.	½		BTS-2.2 Meg.	Red-Red-Grn. AVC Network
20	6.8 Meg.	½		BTS-6.8 Meg.	Blue-Gray-Grn. AF Grid
21	220KΩ	½		BTS-220K	Red-Red-Yl. AF Plate Load
22	470KΩ	½		BTS-470K	Yl.-Vi.-Yl. Output Grid
23	150Ω	1		BW-1-150	Br.-Grn.-Br. Output Cathode.
24	1000Ω	1		BTA-1000	Br.-Blk.-Red Filter
25	39Ω	1		BW-1-39	Or.-White-Blk. Rectifier Ballast

TRANSFORMER (OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: TEMPLE PART No.	STANCOR PART No.	THORDAR'N PART No.		INSTALLATION NOTES
26	2000Ω	3.5Ω	200Ω	.8Ω		A-3876*	T22S45*		*Bend mounting tabs down, file out slots and mount on original bracket.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA: TEMPLE PART No.	JENSEN PART No.		INSTALLATION NOTES
	FIELD	VC IMP.		ST-105		
27	PM	3.5Ω	EH6-1	Mod. P5-X		
	CONE DIA.	VC DIA.				
28	4-5/8"	1/2"	NOT READILY REPLACEABLE -USE COMPLETE SPEAKER UNIT.			

R F COILS

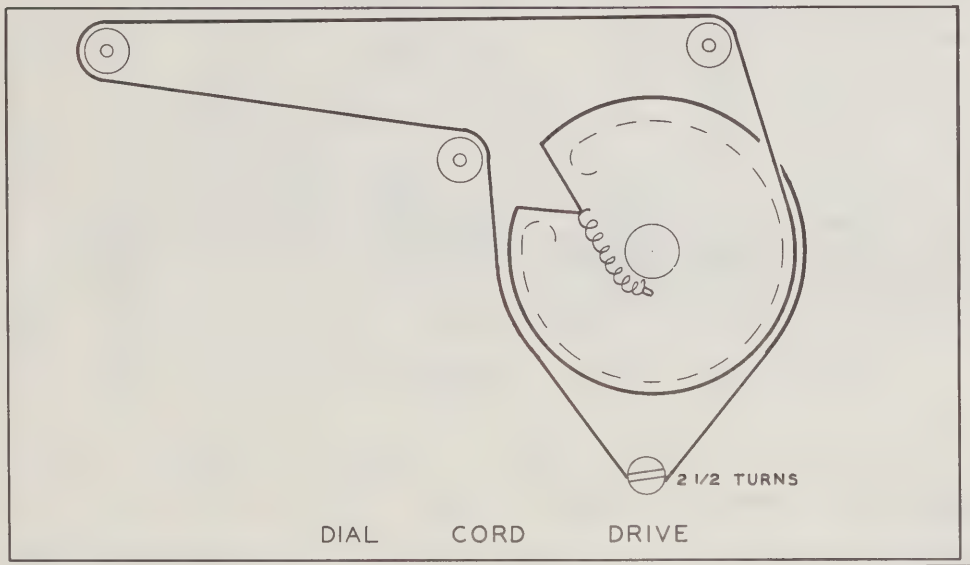
ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA: TEMPLE PART No.	MEISSNER PART No.	
29	Loop Ant.	.1Ω	.7Ω	LL15		Items 30, 31, 32 Part of Tuning Assby.
30	Ant. Coil	2Ω	8Ω			
31	Osc. Coil		9Ω			
32	Osc. Shunt Coil		7.5Ω			
33	Input IF	15.5Ω	15.5Ω	TM2-1	16-6658	
34	Output IF	16Ω		TM2-3	16-6670	

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA: TEMPLE PART No.		INSTALLATION NOTES
35	Bayonet	6-8	0.15	Brown			Type 47

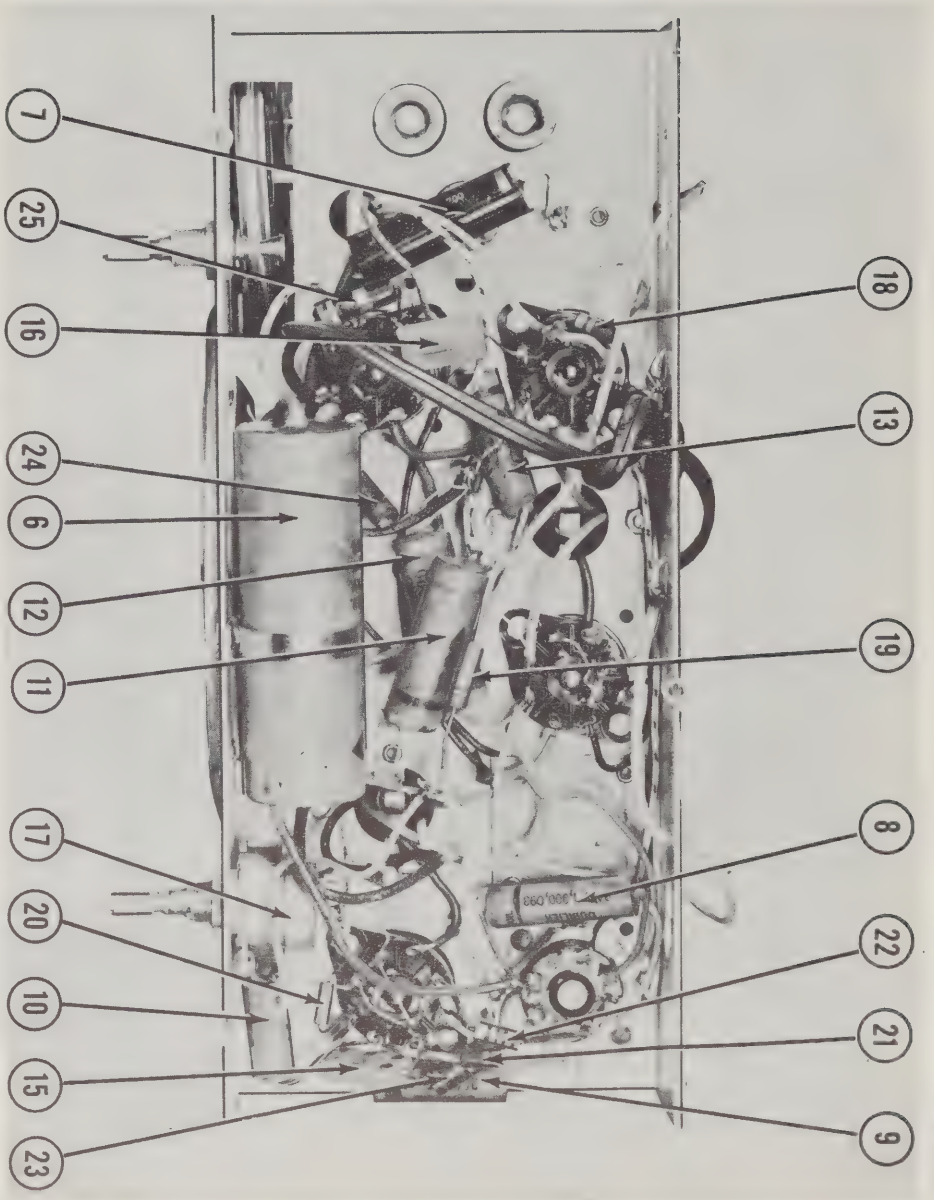
MISCELLANEOUS

ITEM No.	PART NAME	TEMPLE PART No.	NOTES
36	Tuning Assembly		



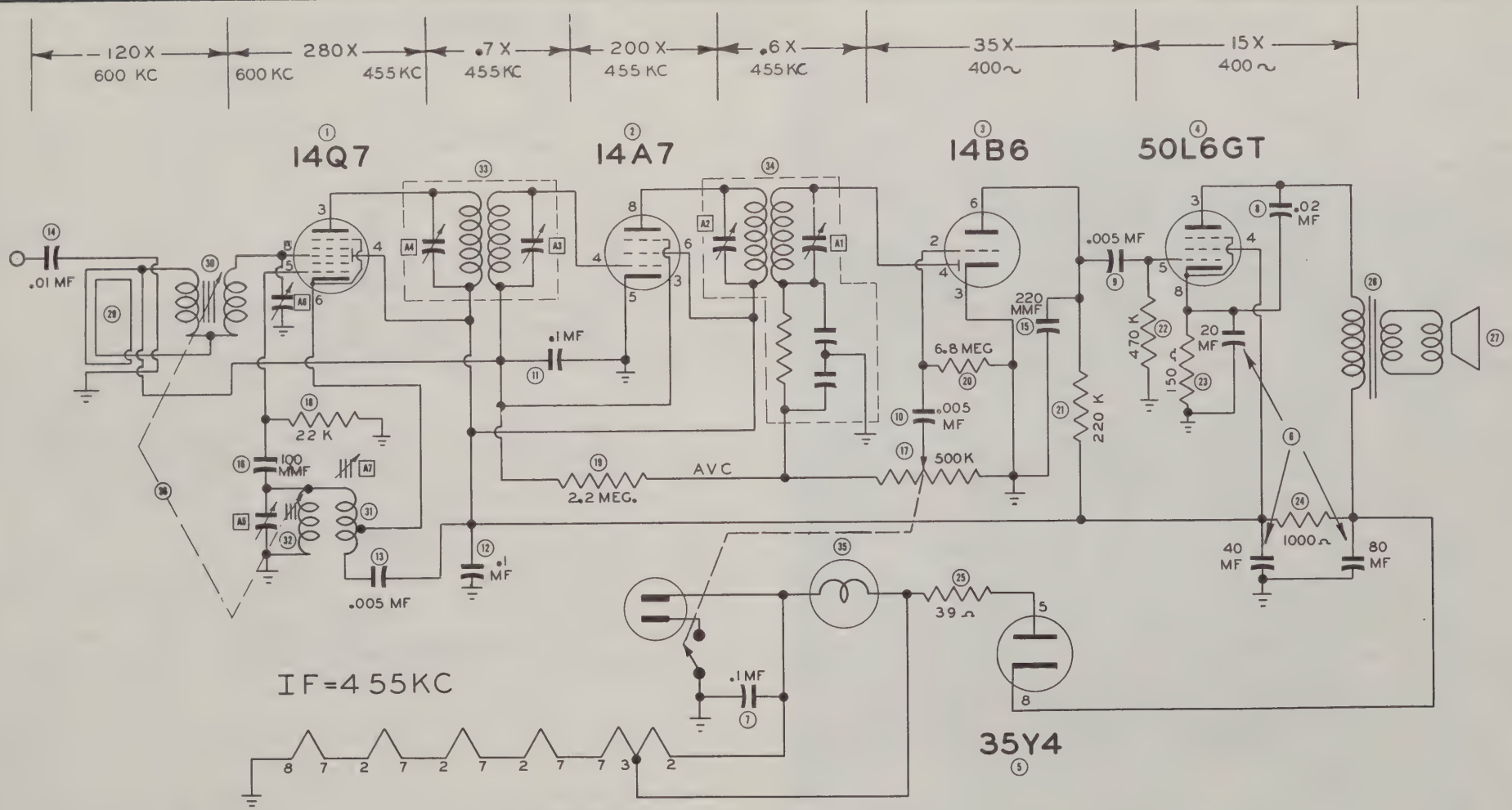
DIAL CORD DRIVE

CHASSIS—BOTTOM VIEW



TEMPLE MODEL G-515

TEMPLE MODEL G-515



VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	14Q7	12V.AC	83V.DC	83V.DC	-3.2V.DC	.2V.DC	-.4V.DC	.2V.DC	23V.AC
2	14A7	23V.AC	83V.DC	83V.DC	.4V.DC	0V.	-.4V.DC	0V.	33V.AC
3	14B6	0V.	68V.DC	-.3V.DC	0V.	0V.	-.4V.DC	0V.	12V.AC
4	50L6GT	0V.	33V.AC	98V.DC	83V.DC	0V.	0V.	78V.AC	5.2V. DC
5	35Y5	117V.AC	103V.AC	0V.	105V.AC	.1V.DC	.2V.DC	105V.DC	78V.AC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	14Q7	12 Ω	30 KΩ	30 KΩ	20 KΩ	15 Ω	2.4MEG	15 Ω	24 Ω
2	14A7	24 Ω	30 KΩ	30 KΩ	2.4MEG	0 Ω	2.4MEG	0 Ω	36 Ω
3	14B6	0 Ω	250 KΩ	6.8MEG	0 Ω	0 Ω	440 KΩ	0 Ω	12 Ω
4	50L6GT	INF.	36 Ω	30 KΩ	30 KΩ	490 KΩ	INF.	80 Ω	132 Ω
5	35Y4	108 Ω	140 Ω	0 Ω	100 Ω	8 Ω	16 Ω	30 KΩ	80 Ω

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

477-34

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

TOP VIEW

GENERAL INFORMATION

The Webster 56 is a single-post changer designed to play automatically up to twelve 10-inch or ten 12-inch records. The changer will shut off automatically at the completion of the last record. Manual operation is provided for playing non-standard and home recordings.

MANUFACTURED BY WEBSTER-CHICAGO, 5610 BLOOMINGDALE AVENUE, CHICAGO, ILLINOIS

THIS CHANGER HAS BEEN USED IN POSTWAR PRODUCTION BY THE FOLLOWING MANUFACTURERS:

Bendix Radio Division, Bendix Aviation Corp.	Baltimore, Maryland
Trav-Ler Karenola Radio & Television Corp.	Chicago, Illinois
The Magnavox Company	Fort Wayne 4, Indiana
Watterson Radio Mfg. Co.	Dallas, Texas
Ansley Radio Corp.	Trenton, New Jersey
Packard-Bell Co.	Los Angeles, California
Westinghouse Electric Corp.	Sunbury, Pennsylvania
General Electric Company	Bridgeport, Connecticut
Espey Manufacturing Co., Inc.	New York, New York
Musitron Company	Chicago, Illinois
Barr Electric Company	Dallas, Texas
Midland Specialty Co.	El Paso, Texas
Wells-Gardner & Company	Chicago, Illinois
Hoffman Radio Corporation	Los Angeles, California
Lewyt Corporation	Brooklyn, New York
Freed Radio Corporation	New York, New York
Allen B. DuMont Laboratories, Inc.	Passaic, New Jersey
Fisher Radio Company	New York, New York
Emerson Radio & Phonograph Corporation	New York, New York

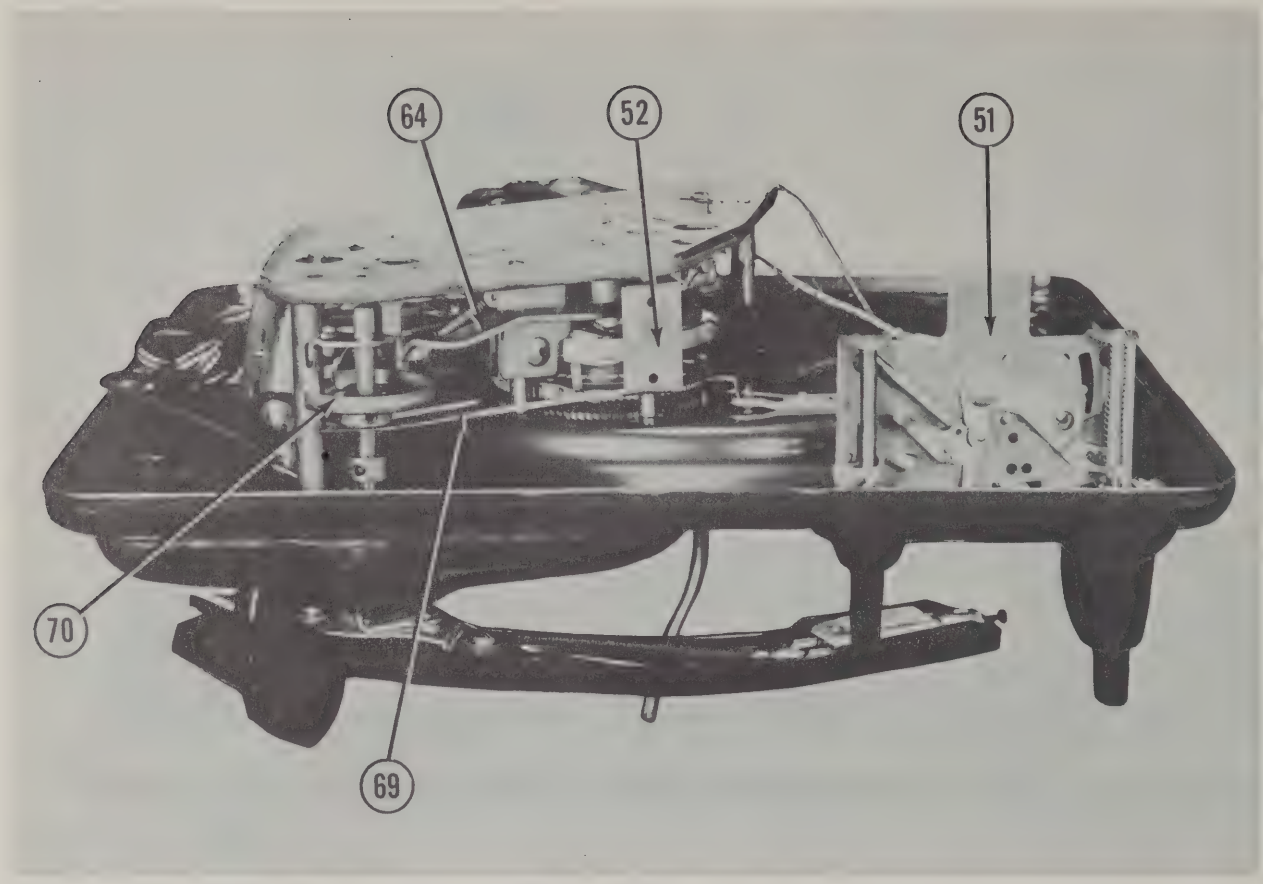
This material compiled and published by

HOWARD W. SAMS & CO., INC., INDIANAPOLIS INDIANA

COPYRIGHT 1947 • ALL RIGHTS RESERVED

WEBSTER-CHICAGO
MODEL 56

WEBSTER-CHICAGO
MODEL 56



SIDE VIEW

When the arm is in "off" position, the lip of the raising disc rests in the groove between the stud post and bracket. In early production, this groove was formed by a chamfered and grooved collar on the stud post. If the arm does not rest properly on the "off" button, its position may be corrected by bending the lip of the raising disc. After making this adjustment, check the set-down on a 12-inch record to be certain the lip of the disc does not strike the bracket.

RECORD SELECTOR POST DISTANCE

At the beginning of the change cycle, the record selector post moves about 3/32 inches toward the spindle. The purpose of this movement is to lock the automatic shut-off lever so it will not interfere with the set-down on the last record. The movement should not be enough to drop a record. If a record does drop during this movement, it will fall on the pickup arm. Early dropping will usually be caused by the selector post resting too far from the spindle. This allows the record to catch on the edge of the selector post instead of sliding on the ledge, and the initial movement of the post will drop the record.

To remedy this, wedge the rocker arm by inserting a screwdriver between the rocker arm pivot and the subplate stud. Then, with the heel of the hand, push the selector post toward the spindle until a standard record resting on the spindle step extends at least half way across the ledge on the selector post.

TROUBLES

I. Failure to trip

a. Insufficient tension on clutch spring (67).
b. Binding in velocity trip and roller assembly (52).
c. Trip dog (56A) binding.
d. Automatic trip arm (69) bent.
e. Manual trip lever (48) binding.
f. No lead in groove on record.

II. Failure of manual trip

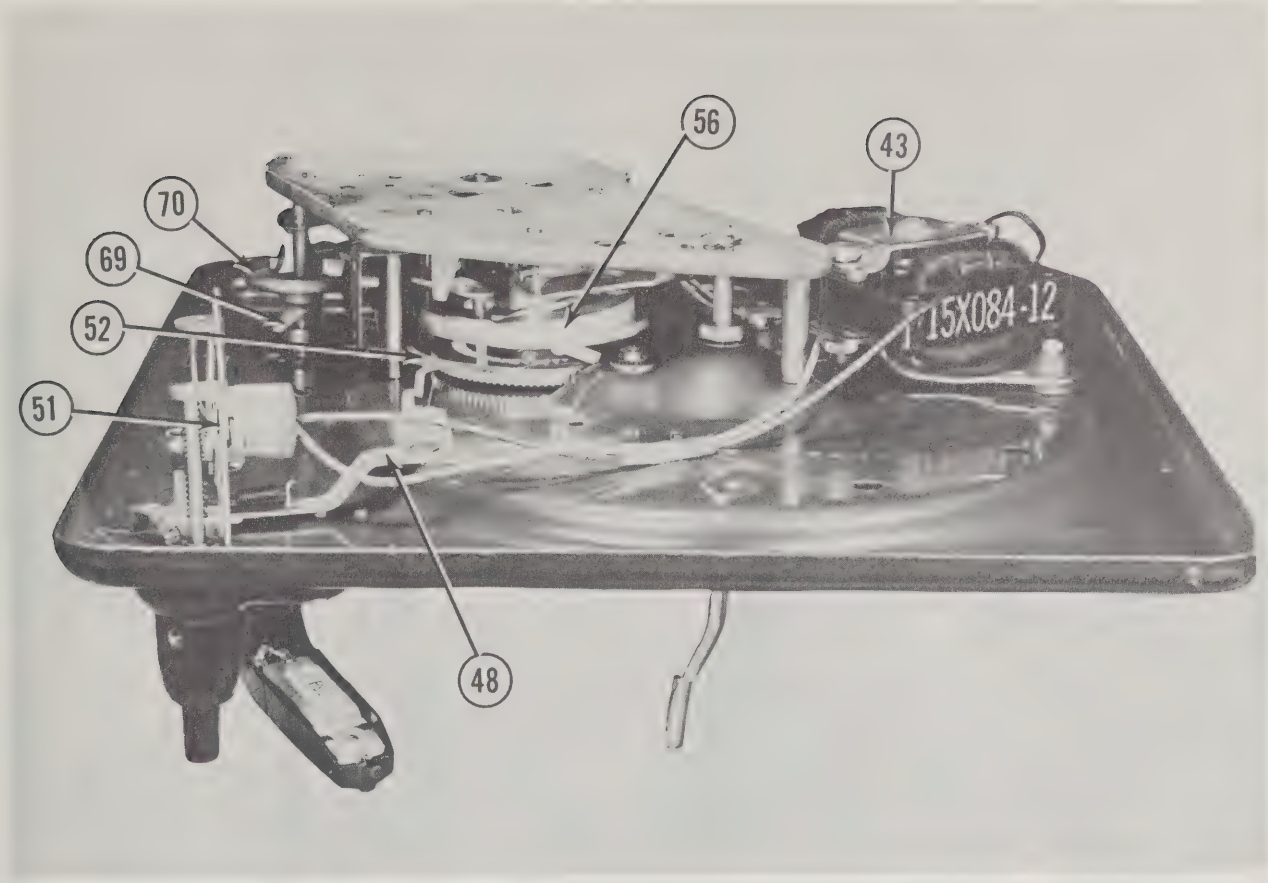
a. Hair spring (49) bent or broken.
b. Trip dog binding.
c. Velocity trip and roller assembly binding.

III. Continuous tripping

a. Too much clearance on hook (52).
b. Hook bent and not engaging trip dog.
c. Roller on velocity trip assembly broken.
d. Manual trip lever binding.

IV. Fails to shut off after last record

a. Spindle binding.
b. Hook on automatic shut-off lever fails to engage raising disc.



BOTTOM VIEW

ADJUSTMENTS

PICKUP ARM HEIGHT

The needle should clear the top record of a full stack by approximately 1/8 inch. Adjustment may be made by bending the pickup raising lever (64) at the bend just below the point of contact with the pickup raising disc. Do not attempt to adjust by moving the raising disc.

SET-DOWN ADJUSTMENT

Normally, the set-down point may be adjusted by turning the eccentric screw in the hinge. This screw may be reached through a hole in the top of the pickup arm. If this screw does not move the arm far enough, loosen the set screws in the pickup arm raising disc, and turn the disc until the adjustment is correct. Use a standard 10-inch record and adjust for a set-down point 1/8 inch in from the edge of the record. Check the adjustment with a standard 12-inch record and make a compromise adjustment if necessary.

RECORD SELECTOR POST ANGLE

The record selector post should be adjusted so that the curve of the post lines up with the edge of a record on the spindle. This may be adjusted, if necessary, by loosening the set screws in the selector lever collar (60) and turning the post to the proper angle.

AUTOMATIC TRIP CLUTCH FRICTION

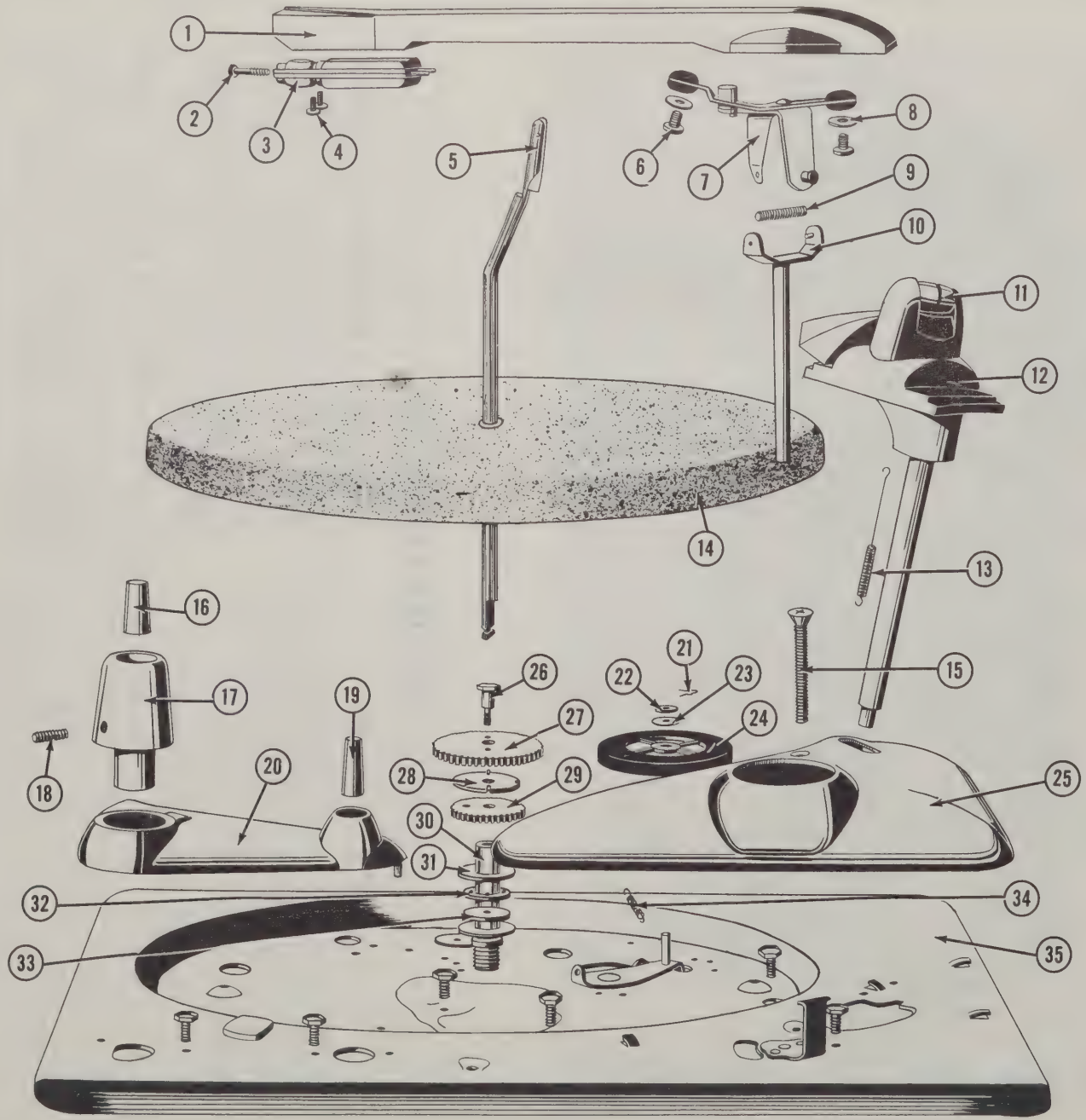
The collar (66) which adjusts the tension of the clutch spring should be set at least 1/4 inch below the main base plate. A spring clip is frequently used instead of this collar. The spring tension should be just enough to operate the trip mechanism. Too much tension will cause undue drag on the pickup arm. No oil or grease should be used on this clutch.

VELOCITY TRIP AND ROLLER ASSEMBLY

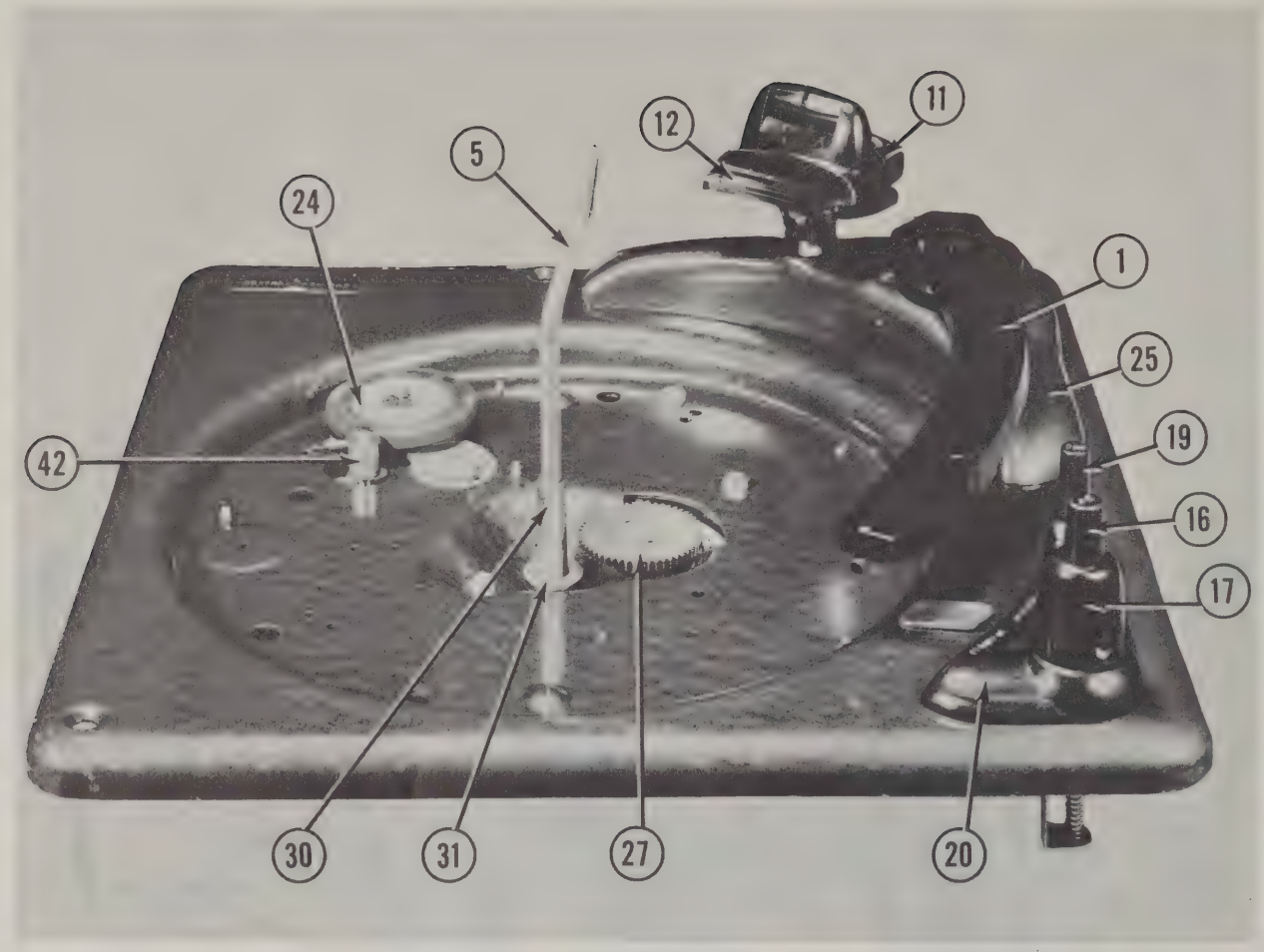
The hook which disengages the trip dog from the main cam actuating gear should be adjusted for a clearance of five to fifteen mils below the actuating gear. Too much clearance may allow the trip dog to bounce and re-engage.

AUTOMATIC SHUT-OFF LOCK

With no records on the turntable, check the automatic shut-off lock lever (63) for proper height. With the changer in play position, the hook should clear the top of the pickup raising disc by about 1/32 inch. Bend the hook, if necessary, to make this adjustment. When the adjustment is correct, the hook will catch the raising disc at the beginning of the cycle and prevent its lateral movement. With records on the spindle, the hook is moved up high enough to clear the raising disc throughout the entire change cycle.


1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35

36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56A
56
57
58
59
60
61
62
63
64
65
66
67
68
69
70
71
72



TOP VIEW LESS TURNTABLE

THE CHANGE CYCLE

The trip dog (56A) is normally held away from the cam actuating gear (47) by the velocity trip and roller assembly (52). This assembly may be moved away manually by pressing the "on" button to reject an undesired record, or it will be moved away automatically when the pickup approaches the spindle at a rate greater than 1/8" per half revolution of the turntable. During normal playing of a record, the automatic trip arm (69) pushes against the velocity trip assembly, but the projections on the cam actuating gear push it back with each half revolution of the turntable so that with normal groove pitch the trip dog will not be released.

When the trip dog is released, it falls into one of the ratchet teeth in the under surface of the cam actuating gear (47). This engages the cam with the gear, causing the cam to turn. As soon as the cam begins to rotate the roller on the rocker arm (61) rides out of the detent on to the flat surface of its track. This causes the record selector post (12) to move about 3/32" toward the center post. This movement is not sufficient to drop a record; its purpose is to catch the automatic shutoff lock to prevent it from stopping the changer before the last record has been played. At the same time, the stud on the pickup raising lever (64) moves out, bringing the raising lever into position to catch the small notch in the pickup raising disc (70).

As the cam continues to turn, the pickup raising lever pushes up on the disc, raising the pickup off the record. The stud on the pickup raising lever now moves toward the center of the cam, moving the pickup out clear of the record stack.

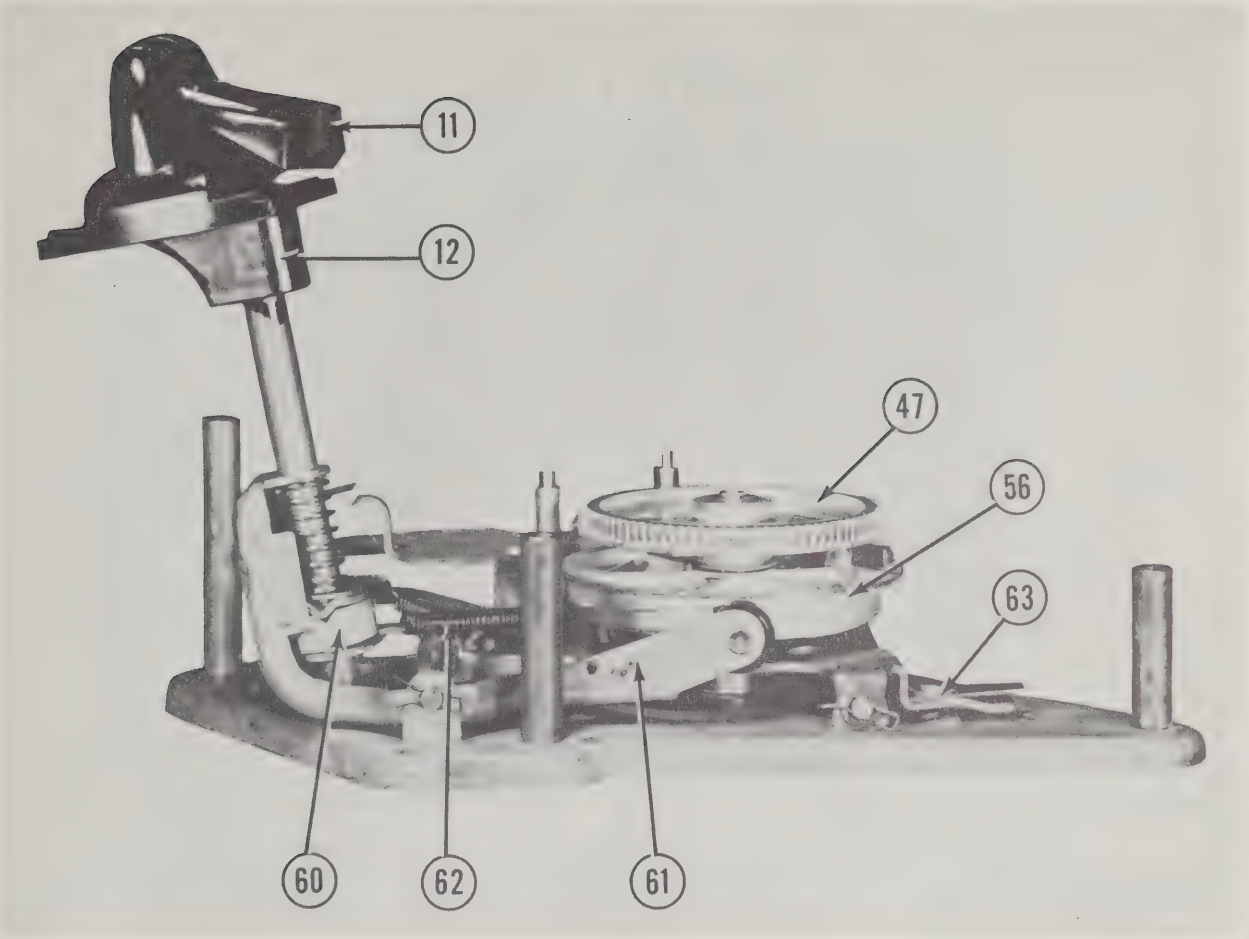
As the cam continues to rotate, the roller on the rocker arm moves down the incline, moving the record selector post toward the spindle to drop a record.

The stud on the raising lever now moves back away from the center of the cam, moving the pickup to set-down position. This position is determined by the compression spring (62). When the record selector post is turned to the 10-inch position, pressure is applied through this spring to cause the raising lever stud to follow the outer edge of the groove in the main cam. With the record selector post in the 12-inch position, the spring is relaxed and the stud follows the inner edge of the groove.

The stud now moves up an incline, allowing the pickup to come down on the record. At the same time, the roller on the rocker arm moves back up its incline, allowing the record selector post to move back to normal position.

The hook on the velocity trip and roller assembly (52) catches the trip dog and disengages the main cam from the cam actuating gear at the end of the cycle.

If no record is resting on the spindle step at the beginning of a change cycle, the automatic shut-off lock will engage the pickup raising disc and prevent the pickup from moving in to the set-down position. It, therefore, sets down on the "off" button, shutting the changer off.



SUB ASSEMBLY

V. Motor fails to shut off

a. Defective switch mechanism. This mechanism should be replaced as a whole.

VI. Spindle drops more than one record

a. Spindle latch sticking. Clean with carbon tetrachloride.
b. Exceptionally thin records.

LUBRICATION

Lubrication should be sufficient for about a year of normal operation. When lubricating, be very careful not to allow oil or grease to come in contact with any rubber surfaces or the automatic trip arm clutch. If oil gets on any of these surfaces, it should be removed immediately with carbon tetrachloride.

I. Use No. 10 oil at the following points:

a. Saturate felts on motor bearings.
b. One drop each—bottom bearing point, hole in bracket, and hole in main base plate for pickup arm shaft.
c. Turntable ball-bearing assembly.
d. Idler wheel felt.

II. Use Lubriplate at the following points:

a. Idler wheel link.
b. Turntable shaft stud (30).
c. Pickup arm hinge pins (part of 10).
d. Knife edge of raising lever (64).
e. Main cam bearing. Remove sub-plate assembly to gain access to this bearing.

III. Apply Sta-put to the following surfaces:

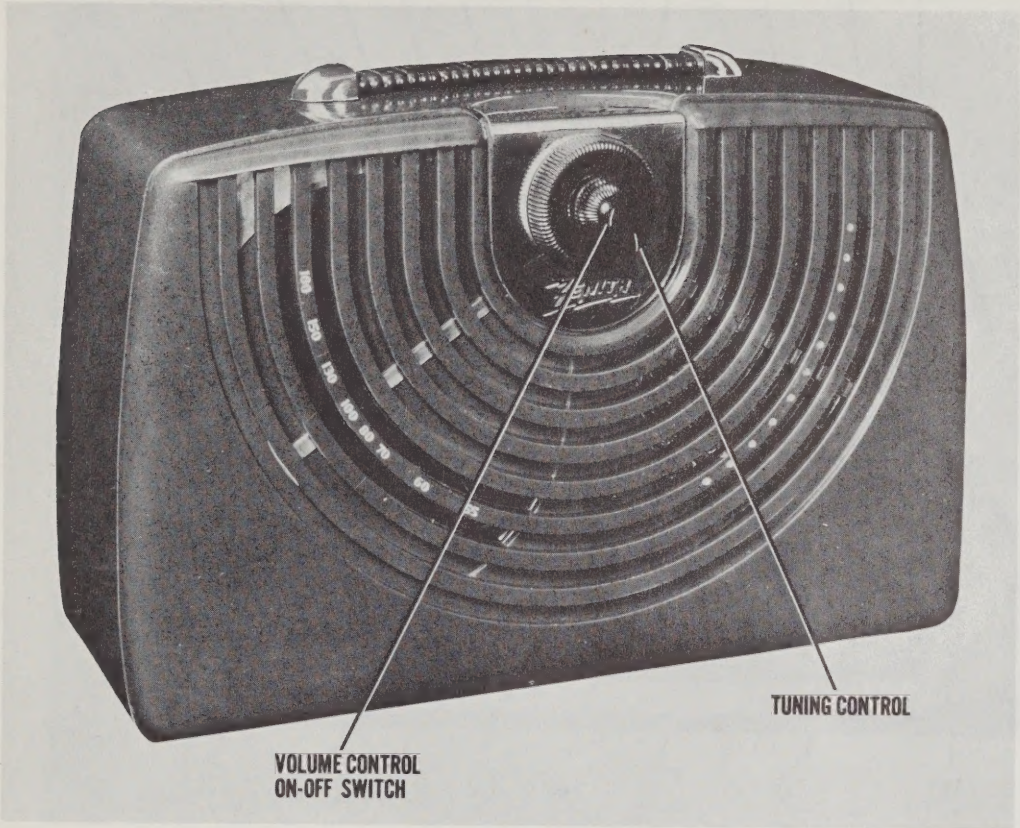
a. Teeth of main cam actuating gear (47).
b. Track of main cam.
c. Teeth of fibre gears (27 and 29).
d. Raising lever bracket bearing surfaces (64).
e. Selector lever stop (59).

PARTS LIST

No.	Part No.	DESCRIPTION
1	49X021-2C	Pickup arm
2		Needle Screw
3		Crystal Cartridge
4		Crystal Mounting Screw
5	11X133	Spindle assembly
6		Hinge mounting screw
7	21X258 21X199	Hinge (late models) Hinge (early models)
8		Flat washer
9	46P015	Compression spring (late models)
10	11X136 42X074	Tone arm shaft (late models) Tone arm shaft (early models)
11	49P037-C	Record stabilizer weight
12	49X029-C	Record selector post
13	46P126	Stabilizer weight spring
14	11X138-C	Turntable
15		Crescent mounting screw
16	49P026-C	"On" button
17	49P024-C	Control knob
18		Setscrew
19	49P025-C	"Off" button
20		Control escutcheon
21	50P125	Hairpin clip
22	25P046	Flat washer
23	25P030	Felt washer
24	11X003	Idler wheel
25		Crescent
26	27P102	Shoulder mounting screw
27	47P024	Fibre gear (large)
28	45P342	Gear coupling
29	47P023	Fibre gear (small)
30	41P414	Turntable bearing stud
31	25P269	Bearing washer
32	11X058	Bearing race
33		Flat washer
34	46P112	Idler tension spring
35	45P191	Base Plate Arm lift stop bracket
36		Speed nut
37		Lock nut

No.	Part No.	DESCRIPTION
38	26P687	Turntable stud mounting nut
39		Flat washer
40		Lock washer
41		Nut
42	17X412-1 17X412-4	Pulley (60 cycle) Pulley (50 cycle)
43	15X084-12 25P281	Motor Rubber grommet
44		Motor mounting sleeve
45		Flat washer
46		Motor mounting screw
47	11X032	Main cam actuating gear
48	11X063	Trip lever
49		Trip wire—part of 48
50		Tension spring
51	11X052 32P002	Switch assembly Switch
52	11X047	Velocity trip and roller assembly
53		Spring washer
54		"C" Clip
55		Flat washer
56	11X033	Main cam assembly
57	46P012	Compression spring
58	46P122	Rocker arm tension spring
59	45P194	Selector lever stop
60	11X049	Selector lever and collar
61	11X043	Rocker arm
62	46P011	Selector lever compression spring
63	11X079	Automatic shut-off lock
64	11X046 11X044 11X045	Pickup arm raising lever and bracket Raising lever bracket Pickup arm raising lever
65	46P044	Raising lever tension spring
66	45P436	Velocity trip tension collar Velocity trip tension lock
67	46P127	Velocity trip tension spring
68	41P421	Rocker arm pivot pin
69	45P345	Velocity trip arm
70	11X031	Pickup arm raising disc
71		Sub-plate and stud assembly
72	41P443	Automatic shut-off lock pivot pin

ZENITH
MODEL 5 G 003 (CH. 5 C40)



ZENITH
MODEL 5 G 003 (CH. 5 C40)

ZENITH MODEL 5G003

TRADE NAME	Zenith, Model 5G003 (Chassis 5C40)
MANUFACTURER	Zenith Radio Corp., 6001 Dickens Ave., Chicago,39, Ill.
TYPE SET	Three Power Portable Superheterodyne with Self Contained Loop Antenna
TUBES(FIVE)	Types, 1LA6 Converter, 1LN5 IF Amp., 1LH4 Det.-AVC-AF, 1LB4 Power Output, 117Z3 Rectifier.
POWER SUPPLY RATING	105-120 Volts AC-DC or 6 Volts "A" Battery & 75 Volt "B" Battery (In Pack Form) .140 Amp. @ 117 Volts AC or 53 MA @ 6.4 Volts DC & 9½ MA @ 79 Volts DC
TUNING RANGE—BROADCAST	535-1620KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer, turn tuning capacitor fully closed and set pointer to last reference mark at low frequency end of dial. Use battery power when available. If AC power is used, use an isolation transformer when available. If not, connect a capacitor in series with low side of signal generator and B-. Loop should be maintained in same relative position to chassis as when receiver is in cabinet. Volume control at maximum position, output of signal generator should be no higher than necessary to obtain output reading. Use an insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.5 MFD.	High side to Pin 6 (grid) of 1LA6. Low side to B-.	455KC	600KC	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If AC power is used without an isolation transformer reduce dummy antenna to .001 MFD. to reduce hum modulation.
	Loop	1600KC	1600KC	"	A5	Fashion loop of one turn of wire and radiate signal into loop of receiver. Adjust for maximum output.
	"	1400KC	Tune for maximum output.	"	A6	"

HOWARD W. SAMS & CO., INC. **Indianapolis , Indiana**

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed." "Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1947 by Howard W. Sams & Co., Inc., Indianapolis, Indiana, U. S. A. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc."

PARTS LIST AND DESCRIPTIONS

ZENITH
MODEL 5G003

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: ZENITH PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	Converter	1LA6	1LA6	7AK	
2	IF Amp.	1LN5	1LN5	7AO	
3	Det.-AVC-AF	1LH4	1LH4	5AG	
4	Power Output	1LB4	1LB4	5AD	
5	Rectifier	117Z3	117Z3	4BR	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: ZENITH PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
6A	40	150	22-1081	AF88D	UP4215	FP306†	DY-4020-150	EL-24	■ Filter
B	20	150							▲ "
7A	20	150	22-1014	AF44D	UP2215	FP217	DY-2x20-150	EL-221	■ "
B	20	150							▲ "
8	.05	200	20-1014	484-05	DT4S5	TP426	S-4-05	TC-15	Line Filter
9	.003	400	22-326	484-003	DT6D3	TP406	S-6-003	TC-23	Output Plate Bypass
10	.05	200	22-829	484-05	DT4S5	TP426	S-4-05	TC-15	RF Bypass Pwr. Supp
11	.01	600	22-196	684-01	DT6S1	TP410	S-6-01	TC-11	Audio Coupling
12	.002	600	22-492	684-002	DT6D2	TP405	S-6-002	TC-22	" "
13	.1	200	22-827	484-.1	DT4P1	TP428	S-4-1	TC-1	Filament Bypass
14	.1	200	22-827	484-.1	DT4P1	TP428	S-4-1	TC-1	Line Isolation
15	.05	200	22-829	484-05	DT4S5	TP426	S-4-05	TC-15	IF Grid Filter
16	.05	200	22-829	484-05	DT4S5	TP426	S-4-05	TC-15	AVC Filter
17	.1	200	22-827	484-.1	DT4P1	TP428	S-4-1	TC-1	Filament Bypass
18	.05	200	22-829	484-05	DT4S5	TP426	S-4-05	TC-15	" "
19	.05	200	22-829	484-05	DT4S5	TP426	S-4-05	TC-15	Conv. Screen Bypass
20	150	500	23-470	1468-00015	5W5T15	MC236	M0.5-315	1FM-315	Audio Plate Bypass
21	100	500	22-162	1468-0001	5W5T1	MC235	M0.5-31	1FM-31	RF Coupling

†Do not use bypass section.

CONTROLS

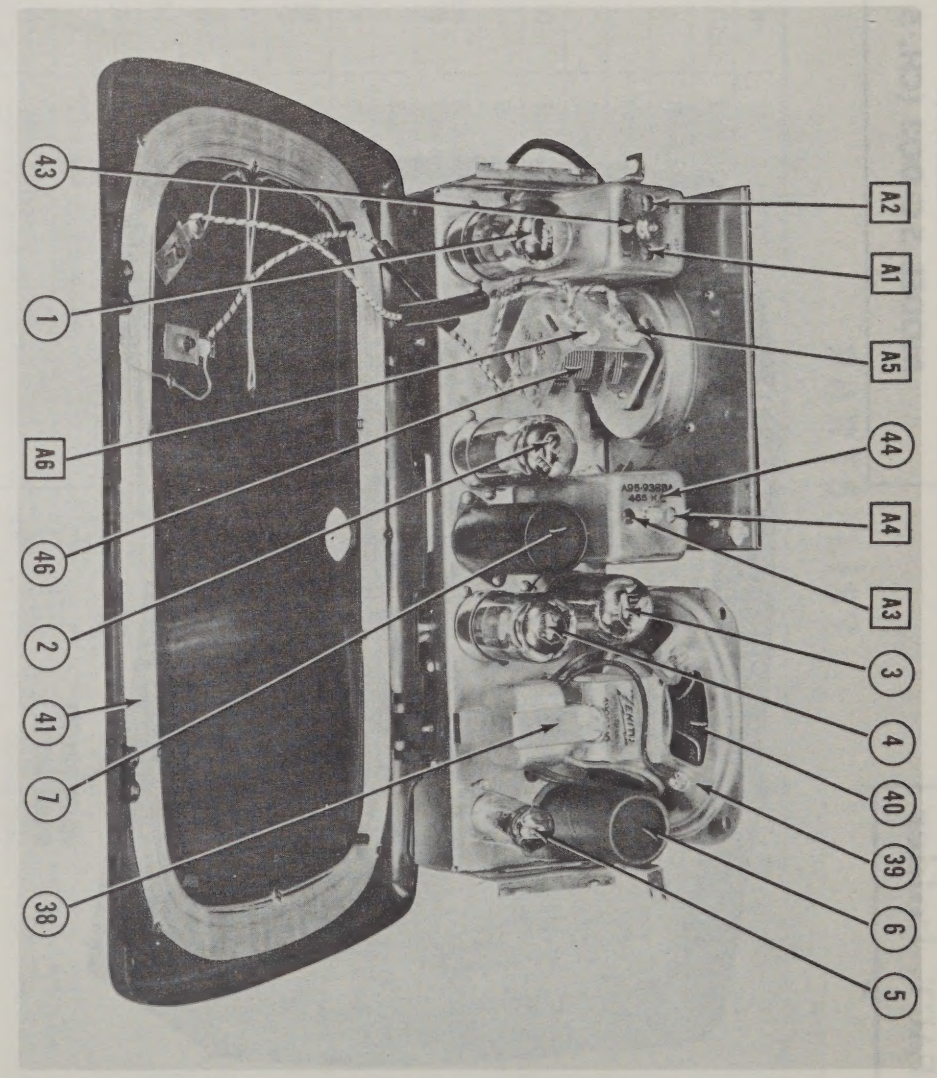
ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: ZENITH PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
22	1 Meg.	1	63-1549				Volume Control & Switch

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: ZENITH PART No.	IRC PART No.	IDENTIFICATION CODES
23	220KΩ	½	63-296	BTS-220K	Red-Red-Yl. Converter Grid
24	180KΩ	½	63-654	BTS-180K	Br.-Gray-Yl. Oscillator Grid
25	22Ω	½	63-579	BW-½-220	Red-Red-Br. Parasitic Suppressor
26	33KΩ	½	63-646	BTS-33K	Or.-Or.-Or. Converter Screen Dropping
27	4.7 Meg.	½	63-602	BTS-4.7 Meg.	Yl.-Vi.-Grn. IF Grid
28	2.2 Meg.	½	63-600	BTS-2.2 Meg.	Red-Red-Grn. AVC Network
29	15 Meg.	½	63-976	BTS-15 Meg.	Br.-Grn.-Blue AF Grid
30	1 Meg.	½	63-271	BTS-1 Meg.	Br.-Blk.-Grn. AF Plate Load
31	2.2 Meg.	½	63-600	BTS-2.2 Meg.	Red-Red-Grn. Output Grid
32	870Ω	1	63-1097		Gray-Vi.-Br. Filament String
33	180Ω	½	63-627	BW-½-180	Br.-Gray-Br. Bias
34	33Ω	½	63-1099	BW-½-33	Or.-Or.-Blk. Filament String
35	2700Ω	½	63-439	BTS-2700	Red-Vi.-Red Filter
36A	1008Ω	10	63-1363	ABA-2000	Filament String-See Note
B	1008Ω	10			" "
37	140Ω	10	63-1366	AB-150	Surge Limiter

Note. On IRC replacement set slider at center.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		ZENITH PART No.	STANCOR PART No.	THORDAR'N PART No.		
	PRI.	SEC.	PRI.	SEC.					
38	13000Ω	3.9Ω	620Ω	.8Ω	206-540	A-3856	T22S48		

SPEAKER

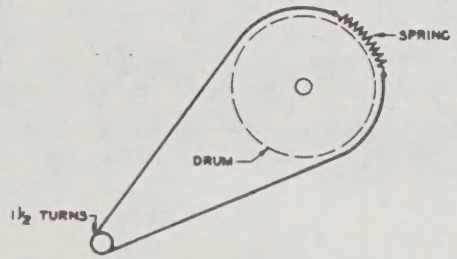
ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			ZENITH PART No.	JENSEN PART No.		
	FIELD	VC IMP.		ST-113		
39	PM	3.9Ω	49-540	Mod. P4-X		
	CONE DIA.	VC DIA.				
40	4"	1/2"	208-540			

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	ZENITH PART No.	MEISSNER PART No.	
41	Loop Ant.		1.5Ω	S-11999		
42	Osc. Coil	3.5Ω	9Ω	S-11830		
43	Input IF	28Ω	22Ω	95-937	16-6658	
44	Output IF	17Ω		95-938	16-6670	

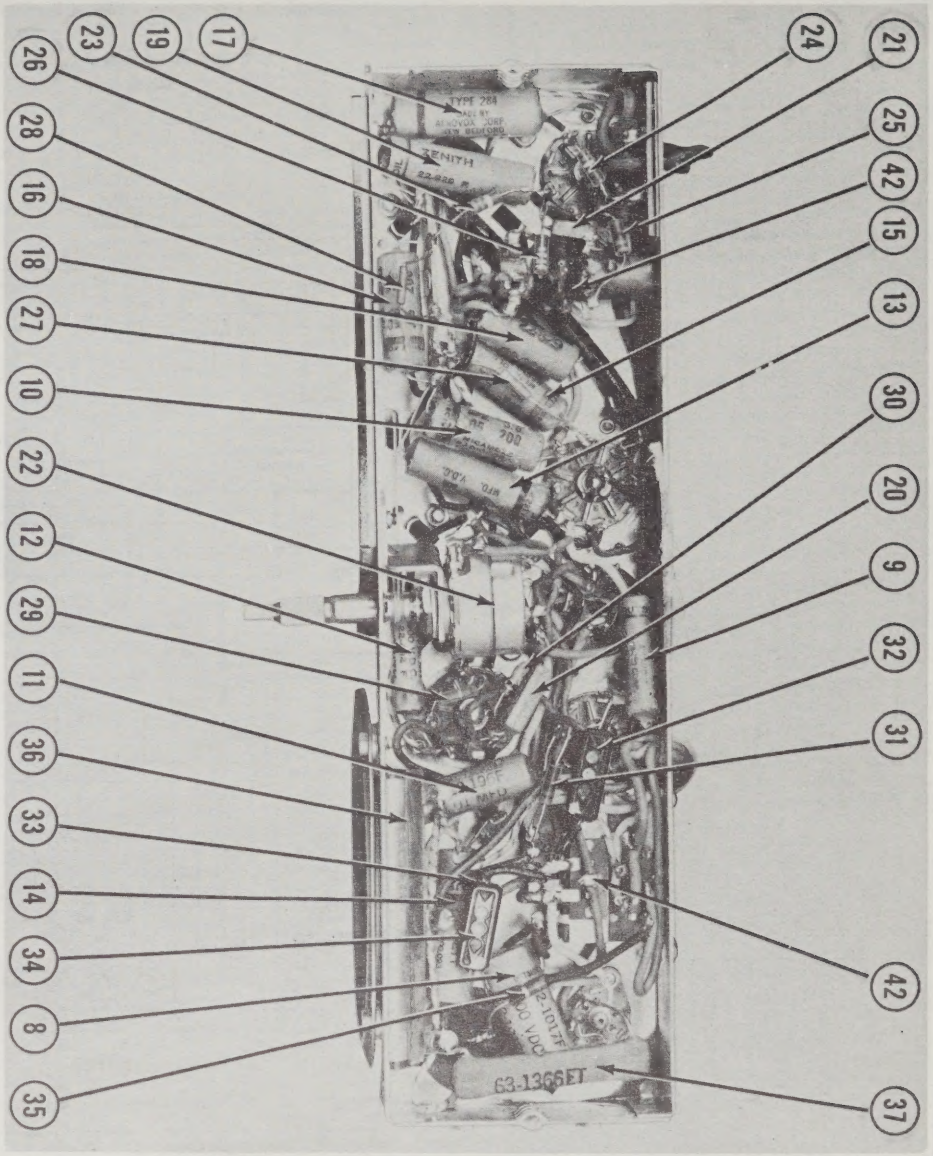
MISCELLANEOUS

ITEM No.	PART NAME	ZENITH PART No.	NOTES
45	Switch	85-367	Power Change-Over
46	2 Gang Var. Cap	22-1450	29-473 MMF, 14-101 MMF
	Battery Pack	Z-6394	6 Volt "A" & 75 Volt "B"
	Dial Scale	26-366	
	Dial Plate	57-1187	
	Dial Pointer	59-164	
	Dial Glass	192-99	

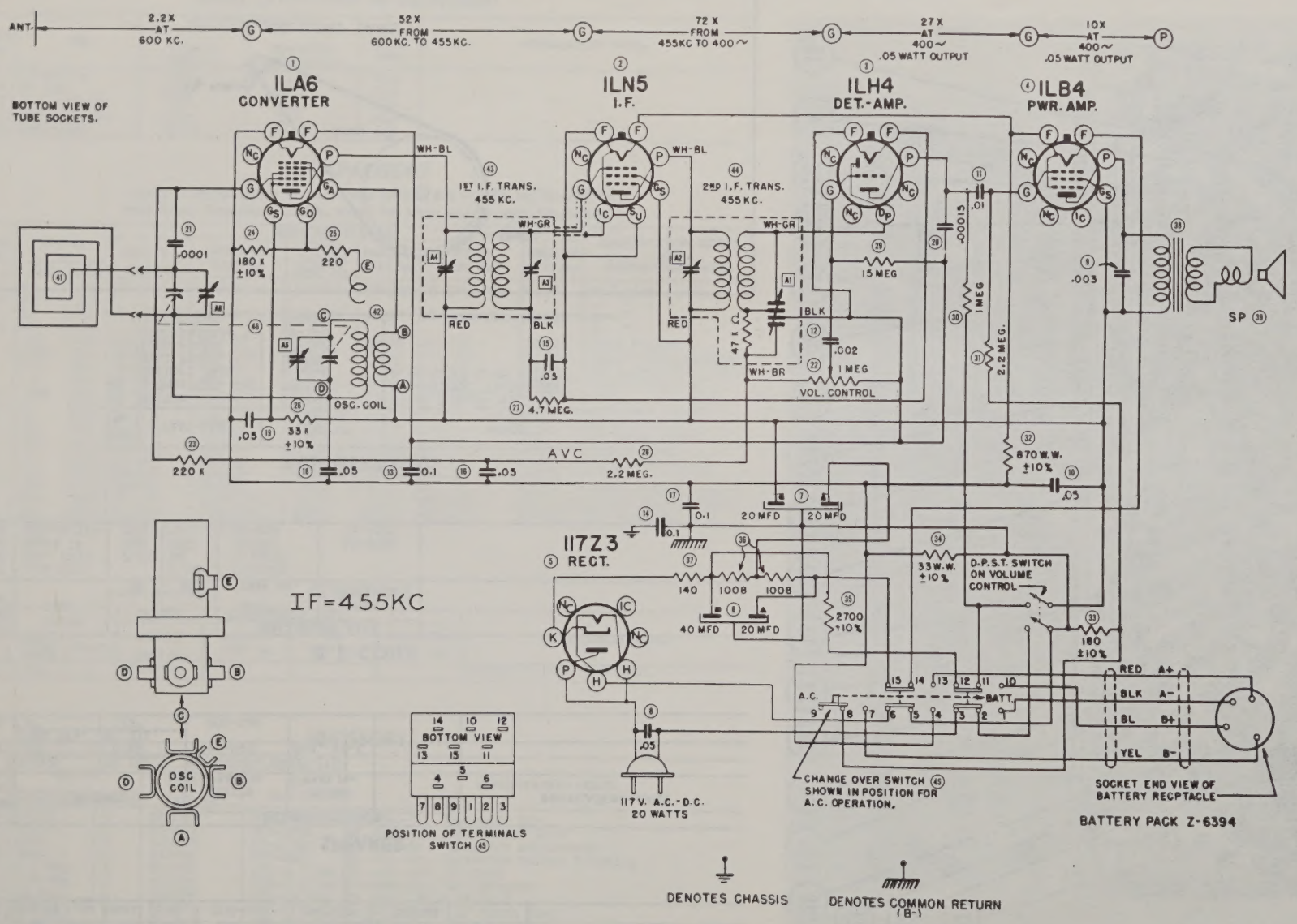


DIAL CORD DRIVE

CHASSIS—BOTTOM VIEW



ZENITH MODEL 5G003



VOLTAGE AND RESISTANCE READINGS TAKEN IN AC-DC POSITION.

Pin No.	1LA6 Volt	1LA6 Res	1LN5 Volt	1LN5 Res.
1	3.2V.DC	*	5.8V.DC	*
2	78V.DC	4200Ω	78V.DC	4200Ω
3	78V.DC	4200Ω	78V.DC	4200Ω
4	.4V.DC	170 KΩ	4.4V.DC	*
5	50V.DC	35 KΩ	4.4V.DC	*
6	.1V.DC	3 MEG.	.1V.DC	4 MEG.
7	0V.	INF.	0V.	INF.
8	6.8V.DC	*	4.4V.DC	*

Pin No.	1LH4 Volt	1LH4 Res	1LB4 Volt	1LB4 Res.
1	4.4V.DC	*	6.9V.DC	*
2	54V.DC	930KΩ	75V.DC	5000Ω
3	0V.	INF.	78V.DC	4200Ω
4	.2V.DC	930KΩ	0V.	INF.
5	0V.	15MEG.	0V.	INF.
6	0V.	15MEG.	0V.	1.7MEG.
7	3.2V.DC	*	0V.	INF.
8	3.2V.DC	*	5.8V.DC	*

Pin No.	117Z3 Volt	117Z3 Res
1	0V.	INF.
2	0V.	INF.
3	117V.DC	340Ω
4	0V.	0Ω
5	117V.DC	340Ω
6	110V.DC	2000Ω
7	0V.	INF.

*DO NOT USE OHMMETER TO MEASURE FILAMENT RESISTANCE.

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

477-35

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is shorted to low side of volume control.

1 - DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1000 ohms per volt.
2 - Socket connections are shown as bottom views.
3 - Measured values are from socket pin to common negative.
4 - Line voltage maintained at 117 volts for voltage readings.
5 - Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6 - Volume control at maximum, no signal applied for voltage measurements.